

# THE COMMERCIAL CAR JOURNAL

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## TABLE OF CONTENTS

Activities of the Motor Truck Assn. of Philadelphia.	62
Advertisers' Index	148
Bus Table	50
Buyers' Index of Reading and Advertising Pages	142
Commercial Car Specifications	39
Editorials	27
News of the Trade, Including Personals, Factory Items, Etc.	28
Replacement Table	33
Shop Hints	54

## SPECIAL ARTICLES

Move the Freight Terminal to the Green Lands	10
Truck Paper and Trade-ins Discussed at N. A. C. C. Truck Convention	11
Good Business Reported at Local Truck Shows	12
At First a Failure—Then a Success	14
Good Roads Show Draws Record-Breaking Crowds	19
Special Body Saves 35 to 50 Per Cent Hauling Milk	20
Fresno, Cal., Popularizing the Electric Truck	22
A New System of Bus Lighting	24
A Truck in the Live-Stock Industry	56
New Service Bus Chassis, Model 61B	60

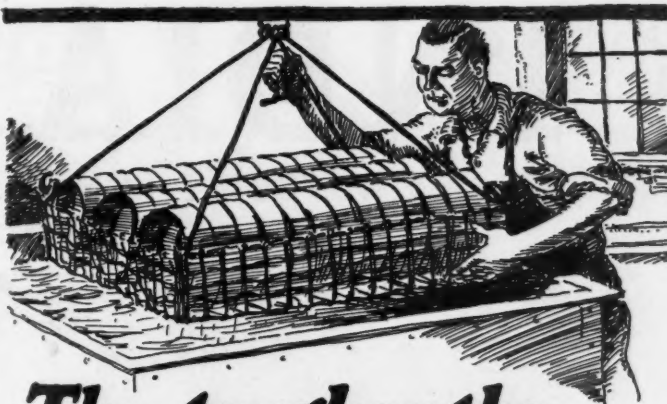
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## The tougher the Cleaning Job— the greater the need for Oakite

**I**F it can be cleaned, Oakite will clean it. The ability of Oakite materials and methods to measure up to the needs of the hardest kind of cleaning jobs has helped hundreds of plants out of the trouble they were having due to poor cleaning.

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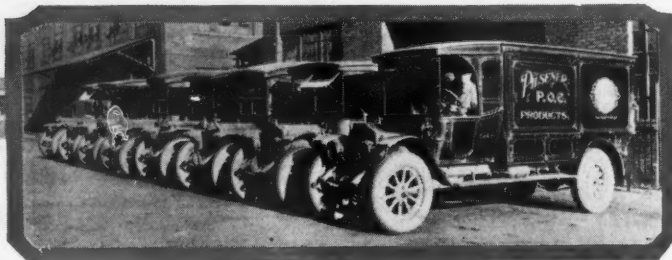
# OAKITE

Trade-Mark Reg. U. S. Pat. Off.

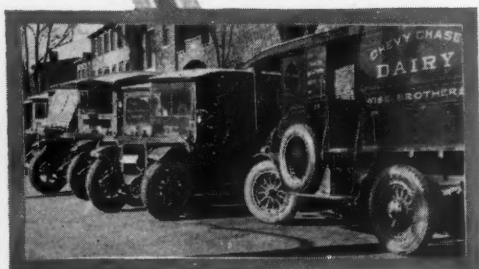
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# INDIA TIRES

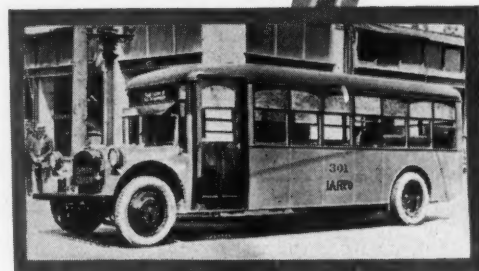
"BUILT FOR THOSE  
WHO NEED THE BEST"



Another large  
Cleveland estab-  
lishment that uses  
India "Giants"  
exclusively.



In Washington, D. C.,  
is the Chevy Chase  
Dairy. They use  
India Tires exclusively.



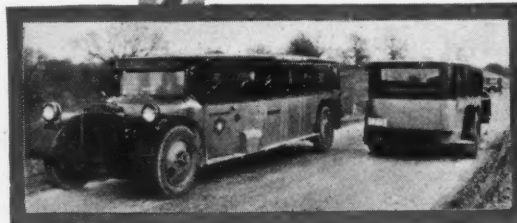
This large California  
Bus Company uses  
Indias exclusively.  
They operate a large  
fleet.



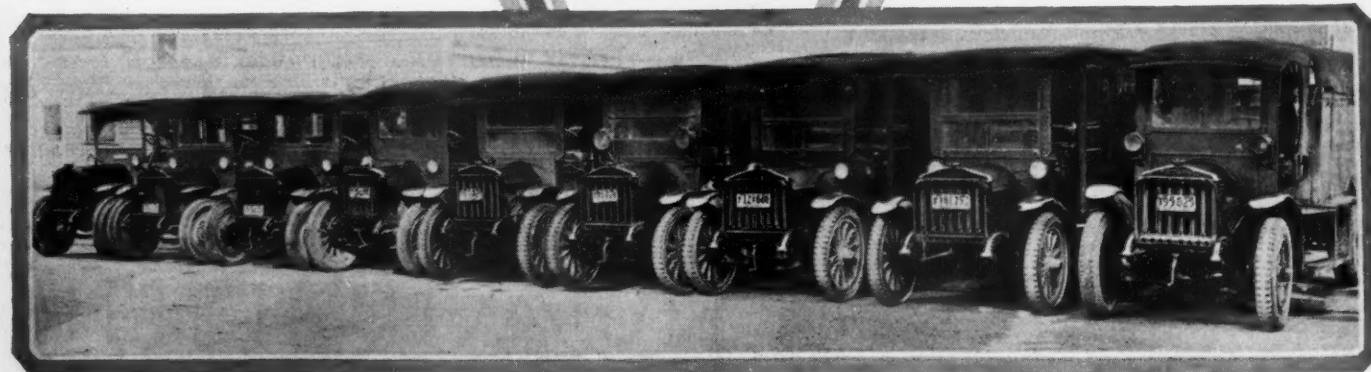
Another large Washington (D. C.)  
Dairy Company, whose fleet is  
India equipped.



*The*  
**INDIA  
TIRE & RUBBER  
COMPANY  
AKRON, OHIO**



Hundreds of large bus lines find  
India Tires cost less per mile.



Most large Cleveland Ice Cream Companies use India Tires.  
This one does.



# The Commercial Car Journal

VOLUME XXVI

PHILADELPHIA, FEBRUARY 15, 1924

NUMBER 6

## Have You Sold Your Customer on the Advertising Value of His Trucks?

*The Motor Truck is the Best Kind of an Advertisement for the Retail Merchant. The Proper Kind of Advertising Copy Suggested for the Delivery Car Will Many Times Sell the Customer on the Truck*

IT is not always the price of the chassis or the kind of an engine under the hood that sells the motor truck. The merchant must be tackled from other angles sometimes to get him to appreciate the value of a commercial car in his business. The moving concerns for instance have long recognized the advantages of well-lettered and attractively painted panel bodies in their business. A good deal of the business they obtain can be traced directly to the moving advertisement which the motor truck provides.

The delivery type of vehicle is just as effective for this sort of advertising. The J. V. Baldwin Motor Co., Chevrolet dealers in Los Angeles, Cal., find this a very effective plan for assisting in the selling of delivery cars. In speaking on this subject, Mr. Baldwin says:

"Few retail merchants such as plumbers, dry cleaners and neighborhood grocers appreciate the value of delivery car advertising. They will spend considerable money buying space in their district paper, in moving picture theatres, or distributing door to door circulars, and then turn around and deliver to their customers in a dilapidated delivery car. They do not stop to figure that the price of all advertising is based on circulation and that a modern delivery car with the proper advertising placed on it in an attractive manner will give them greater advertising circulation for less money than they can purchase in any other way.

"Consider what a merchant would pay for an outdoor advertising sign four feet high and fourteen feet long on one of the busy corners of a city. In Los Angeles such a sign will bring a minimum of fifty dollars a month. Figuring both sides of a panelled delivery car, you have the same equivalent of space, and advertising which is moving from point to point on the busy thoroughfares all day long.

"Parcel delivery companies in this city recognized the fact that their fleets of delivery cars were carrying valuable advertising space which was not being used. Inasmuch as their field of business was limited to a relatively small number of big jobbers and that they had nothing in particular to sell to the general public, they rented this space to firms in other lines of business. The panels of the delivery trucks of one parcel distributing company carry the advertisements of one of the leading picture theaters of Los Angeles. The other carries copy for a well-

known local manufacturer of beverages.

"We use delivery car advertising as a sales argument in several ways. If a concern is using run-down delivery equipment, we approach them from the angle that antiquated or broken down delivery cars give the appearance of a careless organization. We generally make our point by using the iceman as an example. Most of us in California never see the offices or the factory or the executives of the company from which we buy ice every day. The man who puts the ice in our refrigerator and the wagon in which he delivers, in our mind, represents the entire organization. If our iceman is courteous and prompt, and delivers with modern automotive equipment, we assume that the company behind him is an established and dependable organization. An old dirty ice wagon calls to mind slipshod methods and the possibility of short weight and unsanitary methods.

"We find small manufacturers who claim that it is cheaper to have their deliveries made for them than it is to have one delivery car and a driver. Usually a manufacturer overlooks the advertising value of a truck on the street, properly displaying manufacturer's name and line of business. By showing him this advertising is worth at least \$50 a month, we often get the order. If we find that we have interested our prospect, we design the advertising copy which we recommend for his delivery car.



**This Dealer Believes in Advertising His Business**  
He sells his customers on the value of the truck as an advertising medium

# Move the Freight Terminal to the Green Lands

**Congested Conditions of the Present City Freight Sheds Make Such a Move Imperative, is Opinion of Alfred H. Swayne, of the General Motors Corporation**



ALFRED H. SWAYNE

**S**WEEPING changes in railroad terminal practice which may force the transfer of freight sheds in this and other large cities from congested business areas to the "green lands," were forecast by Alfred H. Swayne, of New York City, in an address delivered at the Northern Central division meeting of the Chamber of Commerce of the United States in Chicago, January 21.

Making the emphatic declaration that the economic unrest of 1919 and 1920 was partly traceable to the breakdown in transportation due to massed movements at rail heads, the speaker stressed the need for a co-ordination of all transportation agencies and said that plans are now under way to provide for an expedited, completed service from shipping platform to consumer's gate through the combined use of rail and waterways and organized motor trucking service.

"American railroads rank with the best in the world in line haul," he said, "but the unprecedented growth of tonnage movements in this country has placed a burden on the distribution system in the centers of population which already has brought us to a sharp need for the revision of past practice. Trap car deliveries, switching between local stations and similar time-eating devices must be abolished, and a faster, cheaper and more economical truckage must replace the disorganized, individual handling which is today retarding our freight service and cluttering city streets with an unnecessary volume of slow-moving traffic."

Mr. Swayne called attention to the fact that present practices are in no sense due to railroad failure but rather to economic limitations fastened upon the shipper in the days when horse cartage prevailed, when it was essential that the shipper have his factory at a railroad terminal or within a very few miles of one.

"The effect of this limitation," he explained, "was to stimulate a terminal development in the center of productive activity. Naturally locations of this sort become extremely costly as a city develops and since rail facilities must keep pace with industrial expansion, the railroads have been gradually forced to an overhead investment which today is costing the shipping public hundreds of millions of dollars to maintain and which must inevitably cost similar sums in the

future unless new methods are brought into play.

"Fortunately the motor truck provides us with an answer to the problem and fortunately, too, the operation can be installed at a relatively small expense and without legislation. Nor is this a question of academic theory. Similar practices prevail now in England and while conditions vary as between our two countries, the same basic principles control."

## PREDICTS CLOSING OF CITY FREIGHT TERMINALS

Organized motor truck lines, routed through designated streets will be one of the solutions of the rail terminal problem in large cities, in the opinion of a transportation discussion at the recent annual meeting of the American Economic Association in Washington, D. C. Prof. Emory R. Johnson, University of Pennsylvania, led the conference on this subject.

It was the general opinion that freight cars must be taken out of congested city terminals and unloaded on inexpensive land outside the cities in conjunction with common carrier motor collection and delivery service.

Speakers predicted the actual closing of present city freight terminal facilities because of mounting city real estate values, the present inefficient collection and delivery system, long detention of equipment in terminals and the cost of these to the public. As a corollary to this early relocation, the vital need for organized motor service was suggested, preferably to be handled by the railroads in conjunction with terminal operations.

Mr. Swayne's suggestions, briefly put, call for a transfer of freight terminals from business centers to outlying lands (where the situation is extreme) with an organized motor service making collections and deliveries at stated intervals from and to shippers. In other cases, he pointed out the mere organization of the "collect and deliver" service as it is known, will put an end to the incessant delays which today clog the whole transportation system.

"The shipper cannot expect that such a service will be as cheap at the present station to station rate," he said. "Delivery charges will still have to be added. The shipper is already paying the expense of cartage, but the overhead saving will be large and will exert a profound influence

on all our methods of distribution and merchandizing.

"Look at the trap car service today. A study of terminal practice made by L. F. Loree has demonstrated conclusively that the average trip of the freight car requires 14.9 days of which but 1.64 days are actually spent in line haul movement. For the rest of the time the car is either caught in an intricate trap car movement, in switching or others of the various complications of terminal operation.

"Through abolition of this service, which is paid for by the entire shipping public in most instances, hence usually paid for in part by those who obtain no benefit, the railroads will have the use of all of the cars now so tied up, a figure which runs into hundreds of thousands of freight cars and thousands of locomotives annually. By the same token, purchase of new equipment will be cut down and the movement automatically quickened. Interest on goods in transit will be reduced and the merchant will be able to cut down his stocks, thereby releasing capital for productive purposes. Street congestion, a byproduct of terminal deliveries, which has become the bane of the existence of public officials, will be decreased and the overhead saving which will result, will run into enormous sums."

Citing large monthly savings made by his own company in handling freight direct by motor truck, Mr. Swayne called attention to the broad field of use of the motor truck which exists in a short haul operation of varying lengths dependent upon local conditions, and also asserted that the motor should abandon haulage of general freight for excessive distances.

Sound financial organization as well as regulation of the motor vehicle, highway development and the utilization of modern mechanical equipment were among the steps he said would be necessary to provide for the fullest economic use of the modern unit of highway transport.

Mr. Swayne is chairman of a special committee appointed by the Chamber of Commerce of the United States to investigate the relation of highways and motor transport to other transportation agencies. He is vice-president of the General Motors Corporation and a member of the board of directors of the National Automobile Chamber of Commerce, acting as chairman.



# Truck Paper and Trade-ins Discussed at N. A. C. C. Truck Convention

## *The Subject of Excessive Trade-in Allowances Covered From Many Angles But No Definite Action Was Taken*

By C. P. SHATTUCK

**A** SPIRIT of optimism, a frank discussion of truck paper and the experience of a large railway with trucks, were the features of the truck convention of the manufacturers held at the headquarters of the National Automobile Chamber of Commerce, Jan. 7. Although the attendance was not large it was representative. Judging from the tenor of the discussions following each paper and speaker, the manufacturers anticipate a prosperous 1924, at least they believe the signs point that way.

Nothing startling occurred although the subject of the long allowance was introduced. For a few moments it seemed as if an interesting exchange of ideas would develop but nothing materialized other than the usual suggestion of a united front on a trade-in agreement. One manufacturer, however, urged some action in controlling allowances, stating that there was no sense of giving away profits with highly competitive bidding. It was generally agreed by those who participated in the discussion that the general trend of business conditions in 1924 would not permit of too much generosity in the allowance for the old truck.

The credit situation was frankly discussed in the paper by S. G. Rosson, of the Commercial Credit Co. of Baltimore and his subject, "What Can be Done to Improved the Standard of Truck Paper," resulted in much discussion. The manufacturers did not agree that the speaker's suggestions were all sound but did believe that the quality of the sale should be improved. A Pacific coast manufacturer stated that his company has eliminated long time payments to a great extent and that only 16 per cent of their 1923 business was on a paper basis. It is needless to say that this statement aroused considerable interest and some envy. The speaker stated, however, that the coast was not free from long time payments, that dealers were selling trucks on 18 to 24 months' time and in a number of cases with practically no initial payment. In other words, the impression was conveyed that the credit situation was nearly wide open.

Mr. Rosson, opened his paper with a review of the reason why truck paper has not been profitable. He attributed the chief reason for this to be the factory's

lack of co-operation in standing behind its product until it becomes successfully marketed to the user. He stressed the fact that the factory should take over repossessed trucks which it could repair and dispose of to greater advantage than the financing company. By doing so the factory's loss on such repossessed trucks would not be as great as that of the financing company, which must load its charge sufficiently to cover the hazards which it meets in the business. If the losses were less, he said, they could reduce their charges and would no doubt really seek the business.

"Conditions must come," he said, "to a situation wherein a satisfactory profit will result from the employment of capital in retail paper before you can possibly expect the rate to be lowered. That is a basic truth. Isn't it wise, therefore, to try to improve safeguards and to lessen losses experienced in financing truck paper? Those of you who produce and sell the commodity, and who are endeavoring to build up a market for it, are certainly in the best position to do that. It seems to me that that is the one essential thing to be considered here, rather than the cost of money; **do something that will permit the financing cost to be lowered and leave a profit. Competition and desire for the business can be depended upon to keep the financing charge reasonable.**"

### More Dealer Education Needed

"To my mind the motor truck has a wonderful future. It is an essential business commodity; a formidable competitor, at least for the short haul, to our wonderful railroads and there is room for it as well as for them. The broader the distribution of the truck, the better knowledge will be had of it and the greater usage will be made of it. It must, in the final analysis, go largely to the man who works with his hands and all manufacturers should do more to better educate that man to use it advantageously and successfully. Until a sufficiently satisfactory field organization can be built up to stand alone and enjoy the confidence and credit of the financing companies, I question whether the factory may not be better off to work through branches, but if they do not wish to do so, I believe that the factory will be more prosperous

which recognizes this situation, takes steps to educate its distributing and dealer organizations on better credits, the ultimate user, in regard to the proper way of operating his truck profitably, and is willing itself to further do its part by standing behind its product to the extent of taking it back when a credit does not work out satisfactorily. **This will do more to distribute trucks and to interest the larger and more dependable financing companies in financing the truck product through dealers than any other one thing.**"

James H. Collins, of the Chilton and Class Journal companies presented, by charts, the "Status of the Motor Truck Industry." The charts proved of unusual interest as they showed quite clearly the trend in distribution and the results of marketing through the passenger car dealer.

Mr. Collins pointed out that the predominance of the small truck was due chiefly to the fact that motor trucks are bought, not sold. The initial cost has been given more consideration than the actual transportation requirements of the truck purchaser. Dealers have not, as yet, been shown the great possibilities in the truck field. Trucks must be sold at a profit. He stressed closer co-operation on the part of the manufacturer with his dealers, so that the dealer will become more enthusiastic over this branch of his business. "The possibilities of this field haven't been scratched" said Mr. Collins, "and sales of trucks will be on the increase long after the passenger car sales curve has begun to flatten out."

Another address of interest was made by R. S. Hurd, special agent, Pennsylvania railroad, who described its experiment in moving freight by motor truck. He stressed the importance of analyzing details in truck transportation by any railroad. His description of the use of trucks at zone stations, with pick-up and drop cars showed that a considerable saving in time was effected as well as economy for the railroad, but he emphasized the need of the trucks practicing the return haul principle. "Trucks could be efficiently employed," said the speaker, "to substitute for the peddling train and for terminal handling of freight." When questioned as to the use of trucks at large terminals and

(Continued on page 20)

## Good Business Reported at Local Truck Shows

### Cleveland Truck Show

"GET every auto show visitor to attend the truck show" is the ideal towards which the Cleveland show management, headed by Herbert Buckman, has been working for the last two years.

Last year's show, like the 1924 exhibit, was staged in the big Public Hall or Civic Auditorium, but as there were neither the space nor the facilities for a proper showing of trucks and busses in the same building, it was considered best to stage a separate truck in an armory across the street. Consistent advertising and the use of a two-section ticket, sold at the regular admission price, encouraged many show visitors to look over the truck and commercial transport exhibit.

Careful check of the attendance records a year ago showed that 47 per cent of the total attendance at the automobile show also visited the truck exhibit, a truly remarkable showing when it is considered that the truck show was in a separate building. Attendance records this year are expected to run even higher.

Cleveland's 1924 Motor Truck Show was a very fine and complete educational exhibit, featuring practically all forms of motor transport vehicles, including trucks, trailers, busses, deluxe motor coaches, business sedans and coupes, industrial or factory trucks and trailers, warehouse trucks, light speed trucks of all types, and even a motor-driven ditch digger.

It was a selling show, too. Many farmers and merchants from outlying towns visit this show every year, and a number of actual sales were made to these classes. One exhibitor alone sold 9 trucks at last year's show, and it is expected that even better results will be shown this year when the final check-up is made.

Cleveland is quite a bus center, so from this standpoint also the show was a fine educational medium. The state-wide Commercial Hauler's Association and the Ohio Automobile Trade Association were represented by Secretary Elber J. Shover, and their exhibit and information booth was of great value to visiting truck owners and transportation men.

### Detroit Truck Show

WITH a floor space almost equal to that of the New York show, and a central location well served by transportation facilities, the 1924 Detroit Automobile and Truck Show has broken all past attendance records, and the exhibitors and Show Manager H. H. Shuart are highly gratified with the results.

Motor trucks, busses, cabs, truck equipment and other motor transportation exhibits were shown in a special section, which, however, was an integral part of the show.

Many of the leading local dealers have exhibited at the Detroit show for a number of years primarily for educational purposes and as a means of meeting present and prospective owners under the most favorable circumstances. With this in view, some of the leading dealers sent show tickets with special invitations to all owners in their files, and find that they get a very gratifying response.

While no effort is spared to make sales of trucks at the show, the success of the exhibit is not judged solely from this angle. In fact one dealer was much pleased over the sale of one heavy duty truck, the first sale he had closed at the show itself in several years. Yet he felt that his exhibits every year had more than paid for themselves even when no direct sales had resulted.

Optimism was freely expressed by a number of the exhibitors, the general feeling being that merchandising methods are gradually improving, and that the surplus of motor transportation which existed two or three years ago has been absorbed. In consequence there is a very good market today for motor trucks in practically all lines of industry.

## Automotive Electric Association Raising Service Standard

THAT the Automotive Electric Association, comprising manufacturers of electrical equipment and batteries, are making an earnest effort to develop service on a higher plane, particularly in the smaller places, was evident from the tenor of the board of governors meeting, held in New York, January 4. Appointment of A. D. Libby, president, to co-operate with the standards committee of the S. A. E., was another step towards the reduction of a multiplicity of models in starting and lighting equipment which has not furthered the progress of electrical service nor served the best interest of the car owner.

The report of the findings of the service managers' committee of the association was read by Manager Earl Turner and it proved of interest. Particular stress was laid upon the need of developing a plan for increasing the number of authorized service stations in the small towns, also the necessity of supplying the new service station with a sufficient number of accounts to make it profitable. It was also suggested that branch managers and central distributors co-operate in the matter of building up new service accounts and the following resolution, which was accepted by the board of governors was passed:

"The electrical equipment manufacturers

are in favor of co-operative activity on the part of the managers of service branches and central distributors for the purpose of exchanging information in regard to service conditions in their respective territories. It is believed that local conferences will materially assist in the work of extending field service organizations."

The development of a simple accounting system for the small service station, which plan was launched at the May meeting of the A. E. A. and A. E. S. A., has reached the point where a final conference between these organizations on a prepared system will pave the way for broadcasting the system.

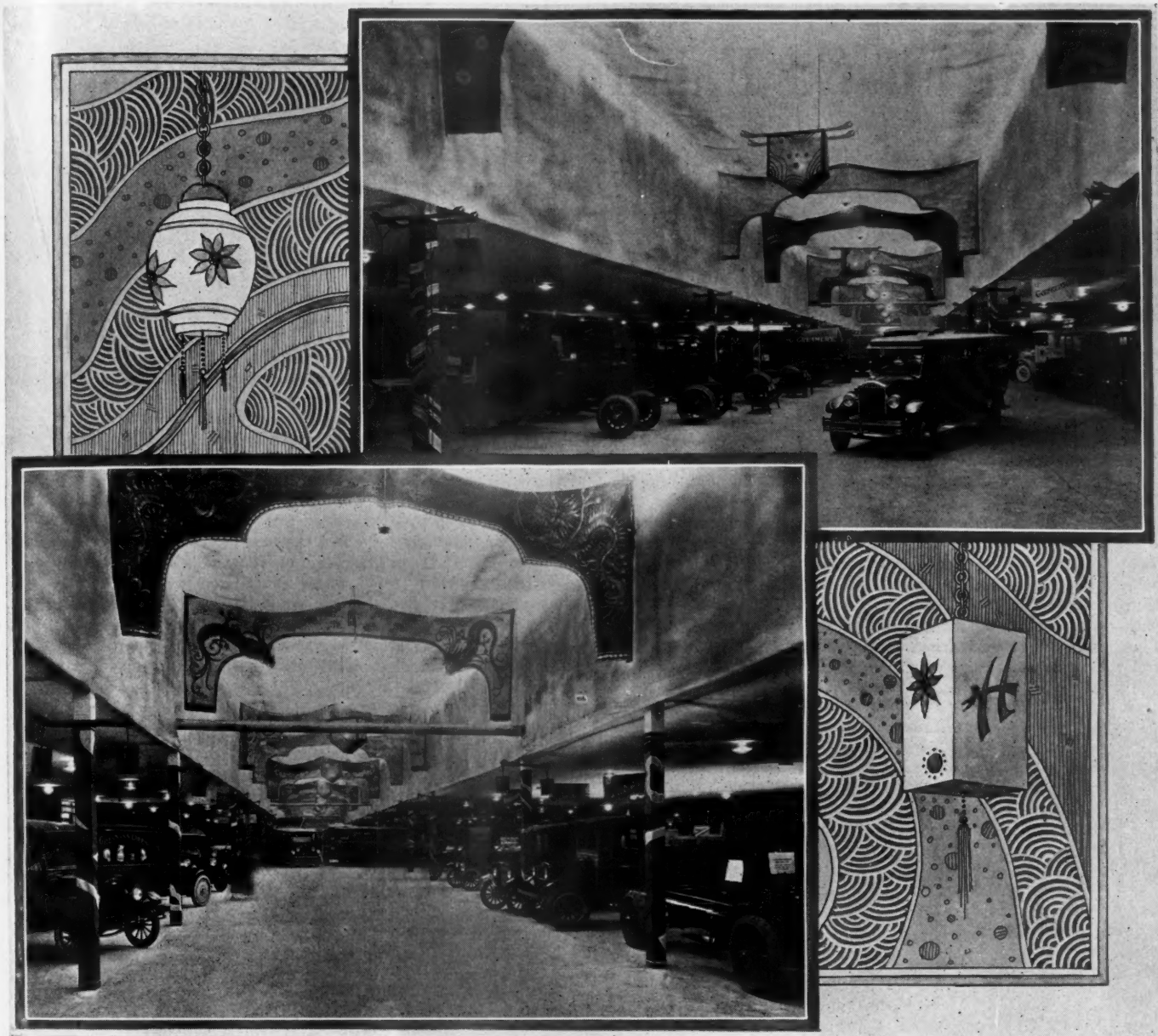
That the A. E. A. is looking forward to the time when prices on service will be more or less standardized was evidenced in the service managers report which endorsed, as did the A. E. S. A., the preparation of times for various operations based in terms of 100 points per hour. The time studies are not to be factory but based on operations timed in various service stations, maximum, and adding 25 per cent. Such data will be issued in proper form. It is recommended that these shop standards sheets be uniform and that the times be checked.

The meeting was well attended and was presided over by president A. D. Libby.

### Brooklyn Service Association Elects Officers

Joseph Kenny was the unanimous choice for president at the annual meeting of the Automotive Service Association of Brooklyn, held Jan. 14. The retiring president, Joseph F. McMullen, was presented with a white gold watch bearing the emblem of the association by the members. The following officers were re-elected: vice-president, Grover C. F. Mayer; treasurer, Harvey J. Wechtel; secretary, Fred M. Smith. New directors are: Joseph McMullen, Edward Krieger and J. Frank Reilly. The association discussed plans for its annual ball which will be held April 25. The speaker of the evening was C. P. Shattuck, field editor, Chilton publications, who spoke on the faults in service. The customary lunch and music followed the meeting.





Detroit Truck Dealers Displayed Their Wares in an Oriental Setting



A View of the Cleveland Truck Show in the Civic Auditorium

# At First a Failure—Then a Success

*The Experience of This Motor Bus Company is Typical of Many Small Concerns Which Start Out With Too Much Overhead. This Company Saw Its Difficulties and Remedied Them*

By C. S. PERRIE

**T**HERE are numerous instances on record where motor bus companies organized on a small scale, have not been successful. The reasons are usually not difficult to discover. Territory is not always the factor responsible for failure. In the majority of failures the promoters did not make a cold-blooded analysis of the pros and cons, while very often sound business management was lacking. Sometimes the wrong vehicle was used. What may be a satisfactory type and capacity in one section may not prove profitable in another. There is much to be learned by operators and the trade, as to the profitable design.

Motor bus management is similar to the selling of motor trucks. Both require a thorough knowledge of transportation and hard work on the part of the seller with close attention to overhead. All of which leads up to how a motor bus company failed and how success has been built upon the failure.

Over three years ago certain young men in Rochester, N. Y., became attracted to the possibilities of a motor bus in supplying service to towns within a radius of 20 miles and such sections not served by common carriers. As is the case in small towns within reasonable distances of a large city those within 25

miles or so, found the large stores of Rochester very attractive.

So the young men believed that a bus line with a regular schedule and a reasonable tariff would be appreciated. But, like many other small organizations, there were too many officers and not enough active workers. Although the busses were well patronized, and no unusual expenses developed other than those experienced by all new bus enthusiasts lacking experience in this field, the black ink column was overcome by the red ink.

The busses were, of course, bought on the usual deferred payment plan. Like many others, the young concern believed



## A Proposition That Succeeded Because the Owners Were Not Afraid of Work

Upper Right: One of the White Busses used by the Rochester Interurban Bus Co. Lower Right: The Terminal used by this company. One-half of this building is leased to cut down overhead. The service station is at the rear, one mechanic being employed to keep the busses in condition and to serve as a spare driver. Circle: William Clancy, treasurer and driver of the Rochester Company. Lower Left: A Hornell-Rochester bus with its officer-driver.



that payments could be met and officials reimbursed from the profits but the load proved too large and the inevitable happened. But before matters became too serious a reorganization plan was worked out. It was a simple one. The non-producing officers became producers. In other words the officers went to work driving, repairing, etc. Another small bus operator was brought into the fold.

Now let us analyze the results, dollars and cents, of this plan. True, it would be much sweeter for the officers to have private offices, time to play golf and live up to the standards of officials—much pleasanter than plowing through snow drifts in winter, facing storms and cold; much nicer than changing a tire, greasing a truck and doing many other tasks that confront the real worker. These and many other inconveniences were suffered but the profits grew, payments were met and each worker, official and otherwise, earned, really earned, his weekly wages.

At the time the writer called last fall, the line was a paying proposition and from the books it looked as if the time might arrive when one or two of the working officials might ease up. The sum total of the plan is that the company has tangible assets, not only in the shape of busses, but a franchise that is worth something. A good franchise is a real asset. Witness the electric street railways losing money on bus lines, new lines, just to keep the franchise. And if the bus line is through or near where real estate developments are, the red ink later becomes black.

The bus company referred to, is the Rochester Interurban Bus Company, Inc., which has a terminal on Plymouth Ave. The busses operate between Rochester and LeRoy, serving Scottsville, Garbutt, Mumford and Caledonia. The distances from Rochester are as follows: Scottsville, 13 miles, fare 40 cents; Garbutt, 15 miles, fare 50 cents; Mumford 19 miles, fare 60 cents; Caledonia, 20 miles, fare 65 cents; LeRoy 28 miles, fare 90 cents.

The first bus leaves Rochester at 9 a.m., and reaches LeRoy at 10:30. The first trip out of LeRoy is at 7 in the morning, the bus arriving in Rochester at 8:30. Saturdays, Sundays and holidays there are extra busses and the last trip from Rochester is at 11:30 p.m., allowing out-of-town visitors to shop and take in the theatres. The schedule is frequent enough to supply good service.

The company operates a summer schedule beginning June 23 to Labor Day, inclusive, for the purpose of rendering service to a section classed as summer residential. The points served from Rochester on the outward trip are: West Henrietta, East Avon, Lakeville, Livonia, McPherson Point and Long Point. Livonia is about 25 miles out. There is also another bus company operating from the Rochester terminal termed the Hornell-Rochester Bus Line. This concern cooperates with the Rochester Interurban by not taking passengers at points served by the latter; that is to say, when the Rochester concern is operating on its summer schedule no passengers are picked up or

carried at these points. Passengers desiring to reach these points are turned over to the Rochester busses.

The Hornell line, which employs a seating capacity for 14, makes but one round trip daily as it is 150 miles. The bus leaves Hornell at 7:30 in the morning and arrives at Rochester at 10:20. It averages 22.6 miles per hour and makes 10 stops. The points touched out of Hornell are Arkport, Dansville, Wayland, Springwater, Websters, Conesus, South Livonia, Livonia, Lakeville and East Avon.

There are eight busses in all counting the reserve members. There are three 2-ton and two  $\frac{3}{4}$ -ton Whites, two 2-ton Stewarts and one 1-ton International. Four of the Whites were placed in service in 1920 and another in 1921. One Stewart went into service in 1920 and another in 1921. The International was purchased in 1920. All of these are in service today although every bus is not used every day, some being emergencies and extra trips when traffic is at its peak.

The policy of the company is to charge off busses at 100,000 miles. During the past year the older busses were renovated, overhauled and painted. The busses are inspected, very thoroughly and thoroughly lubricated weekly. The drivers perform the lubrication. The company practices the policy of anticipating repairs, so that needed adjustments are not postponed. With extra trucks this is possible. There may be some question as to the overhead

involved but as most of the busses are already charged off, the overhead is not as an important a factor as it would be with new busses.

The writer saw the figures from the start of the organization and they would make interesting reading for they tell the story of inexperience and experience. Under the old regime there were profits, but there were also payments and expenses, both actively operating.

Figures are quoted for an average month of one bus which is a fair example of the others. The average number of passengers per bus per day was 46. The average fare per passenger was \$0.516. The income per mile was \$0.1962. The total passengers per month was 7222. The total number of miles was 17,414. The total gross receipts was \$3809.90.

The busses are equipped with cord tires and excellent mileage has been obtained. One of the officers of the company stated that one bus with these tires had gone 20,000 miles and he expected they would go through the winter. The total mileage of some of the trucks is interesting. Three of the Whites have been over 250,000 miles and one 170,000. Several of the other busses have passed the 100,000 mile mark. At the time the writer visited the terminal the new organization appeared to be sound financially and optimistic as to the future. The success of this company has been due to all being privates in the army, working hard and giving the busses the attention that they require to deliver the goods.

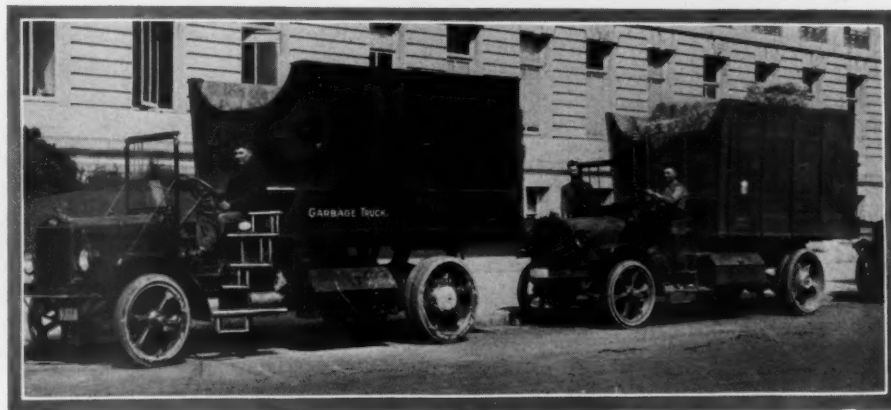
## SNOW NO HINDRANCE TO DELIVERY SERVICE

ONE method of overcoming the snow problem in the delivery of merchandise throughout the city has been unfolded by B. G. Crabtree, a prominent merchant of Ottawa, Ontario, and an officer of the Retail Merchants' Association of the Canadian Capital.

When driving conditions become bad through the presence of considerable soft snow, the motor truck drivers employed by Mr. Crabtree are provided with suitable hand sleighs. When a truck reaches

a side street where the going is difficult, the vehicle is stopped and the delivery of the parcels for that street or section is completed by placing the orders on the hand drawn sleds which is hauled along the sidewalk by the driver or helper.

The sled equipment is generally only required after a heavy fall of snow and until the snow becomes packed again. Driving the trucks along the main thoroughfares presents little trouble at any time.



It's the Little Things That Count

Note the steps at the front of this garbage truck which enable the garbage man to climb to the top of the truck body when loading or unloading. Illustration depicts a fleet of trucks used in garbage collection in the city of San Francisco.

# Views of the 1924 Good Roads Show, Chicago

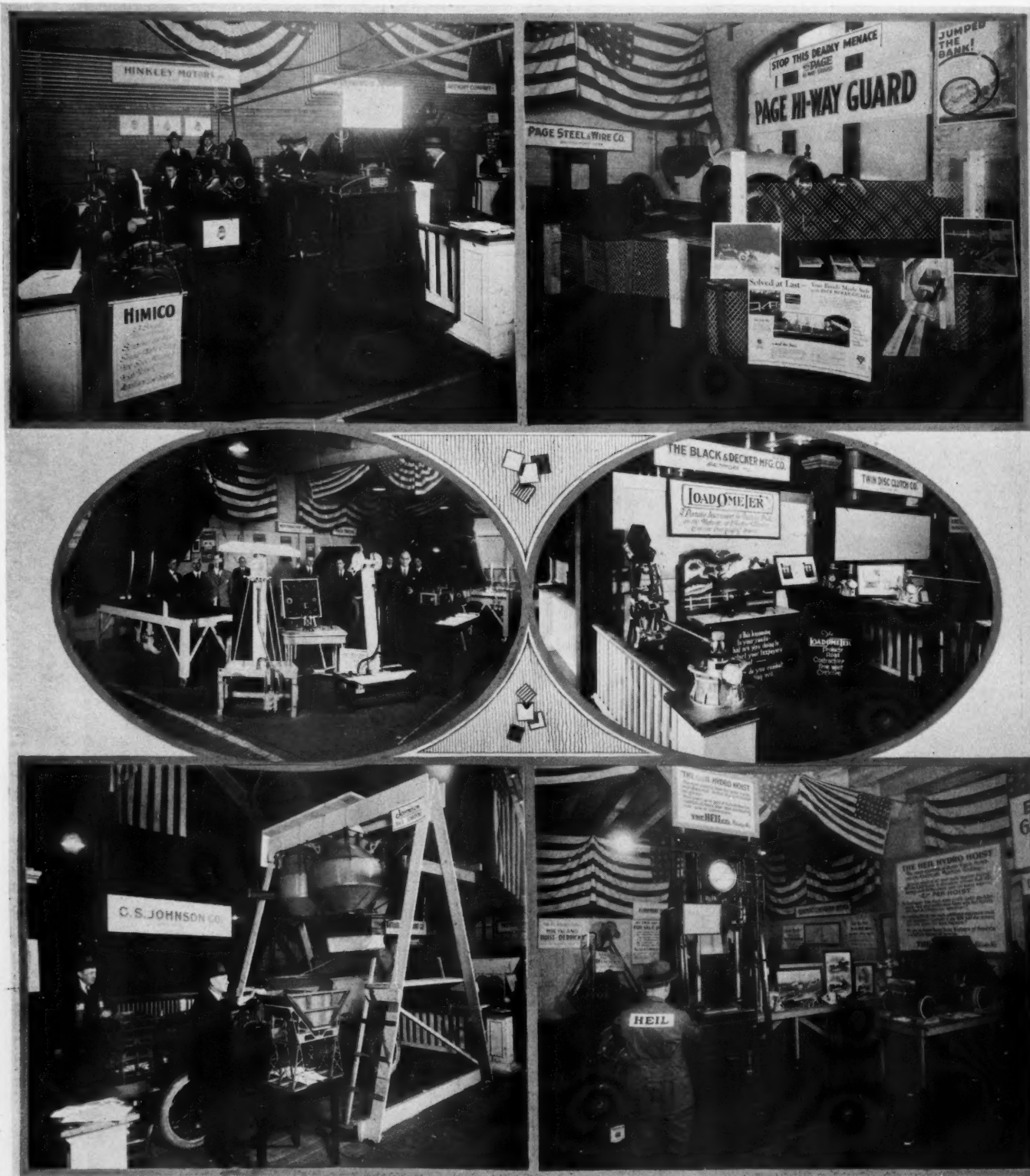






The Above Views, Taken in the Coliseum, Show Only About One-Half of the Total Number of Exhibits. The United States Government Exhibit, See Lower Illustration, Occupied Practically All the Space at One End of the Balcony

## A Few of the 250 Exhibits at the GOOD ROADS SHOW



The Above Illustrations Will Give the Readers an Idea of the Extent to Which the Exhibitors Were Permitted to Go in the Matter of Advertising Their Products at the Good Roads Show. There Was No Limitation as to the Size of Advertising Placards. A Feature of This Show is the Unusual Number of Models Employed by the Manufacturers to Illustrate the Workings of the Large Apparatus.



# Good Roads Show Draws Record-Breaking Crowds

***Over 250 Exhibitors Were Squeezed Into the Biggest Show Ever Held by the American Road Builders' Association. Chicago Again Selected for Next Year's Event***

**T**HE Fifteenth National Road Show has gone down into history as the best and most successful so far held by this association. Over 15,000 contractors, highway officials, engineers and others directly engaged in the building of highways saw this show, in which every available inch of space was taken.

At last year's show the total registration was about 6000. This figure was exceeded this year in less than twenty-four hours after the show opened. Never before were so many attracted to the Good Roads Show. The Coliseum was jammed every day, in fact it was a job to get around the exhibits at any time. Credit is due to those who were responsible for putting on this show, because despite the huge registration everything seemed to go along in an orderly fashion.

To get an idea of the interest manifested in this show one had only to visit the registration desks of some of the hotels. Every one was filled and accommodations were at a premium. A resolution was passed on the third day of the convention "that the 1925 Convention and Road Show be held in Chicago, provided that satisfactory hotel accommodations are obtainable and that suitable quarters for the show can be secured."

Forty-four hours before the Road Show opened, a six-day bicycle race was nearing the finish in the Coliseum. A huge saucer-shaped track filled the Coliseum clear up to the

lower edge of the balcony. Before the race crowd was well out of the building, gangs of men attacked the track and in less than five hours the building was clear, ready for the road machinery. Forty hours later 2700 tons of machinery had been moved in, placed and erected. The first big unit to be moved in was a 41-ton crane, one piece of which weighed 27 tons. Most of the big machinery had to be erected after it was placed inside the building. A large number of machines had to be hoisted to the balcony 40 feet above the floor. To make a long story short, over 200 railway car loads of machinery was placed in the building between 7 a. m. Sunday morning and 8 p. m. Monday evening.

Despite the fact that more exhibits were crowded into the buildings than at any previous show and considering the short time during which this machinery had to move in, the show presented a very orderly and well dressed appearance. Contrary to what might be expected at a show of this character the exhibits were exceptionally colorful, the bright reds, yellows, greens and whites doing much to relieve the monotony which is usually found when battleship gray is the predominating color.

From a business point of view the show was an overwhelming success. No other show in the country attracts a crowd that is so vitally interested directly in the exhibits. The amount of business that was actually closed cannot be estimated but

there wasn't an exhibitor in the place who did not feel that the show was highly successful and well worth the expense attached to it.

The automotive industry was well represented. Motor trucks, tractors, trailers, hoists, gasoline engines, etc., were in evidence at every turn. One impression which the automotive man got after visiting this show was that the road building machinery of this country is practically 100 per cent motorized. Furthermore, the manufacturers of road machinery realize that only the best type of equipment is the most satisfactory in the long run and that the contractor is willing to pay for that which will give the utmost satisfaction. Machinery that is continually breaking down doesn't interest him at all, regardless of the first cost.

Many automotive manufacturers have no conception of the business possibilities which the road building business offers. One automotive engine manufacturer at the show mentioned to the writer, that he never dreamed that there were so many gasoline engines used in road building machinery. He became so enthusiastic over the character of the show that he wired his factory for more men to handle the exhibit and to make a thorough canvass of the show.

The accompanying illustrations give one an idea of the immensity of this annual event. It affords an opportunity for business which the live automotive organization cannot afford to miss.

## What the Road Show Means to Industry

The Chicago Road Show has become one of the great industrial buying fairs of the world. No one can even estimate the amount of actual sales of equipment and materials that will be made here this week.

It is known that the totals will be far beyond what would be considered even probable by most people in the industry. In addition, several times as many orders are determined here during the show, although they may not be pledged for weeks or even for months.

Producers and consumers have come to realize that each successive Road Show indicates more than the previous one what the buying tendency will be for the year.

The Chicago Road Show rapidly is coming to mean to the highway industry what the two great national motor shows mean to the automotive industry.

—From "The Highwayman."

# Special Body Saves 35 to 50 Per Cent Hauling Milk

**T**O say that milk can be transported in tank trucks at an actual saving of from 35 to 50 per cent, yet at a rate per pound nearly 10 per cent higher than in cans, seems contrary to every established law of mathematics; yet that is exactly what is being done by the Pevely Dairy Company, of St. Louis, who contract for their long-distance milk hauling with Mr. Floyd Dycus, owner of two 4 to 6 ton Autocars equipped with glass-lined tanks.

One of these trucks hauls milk from Hagerstown, Ill., to St. Louis, a distance of 72 miles, at a rate of 42 cents per hundred pounds, against a previous rate for cans shipped by freight of 33½ cents per can. (A can delivers from 84 to 86 pounds of milk net with a gross weight for can and contents of 114 pounds.)

The second truck hauls milk from Greenville, Ill., to St. Louis, a distance of 56 miles, at 36 cents per hundred pounds, against a previous rate of shipping cans by freight of 28½ cents per can.

In spite of the higher haulage rates charged by the tank method, several economies are effected, which actually reduce the cost of this method from that of shipping milk in cans. There is the replacement of cans to be considered, with an average life of only about thirty months, at a cost of from four to five dollars each. There is also the large amount of floor space required for cans, both at the dairy and at the central bottling plant. And there is the labor charge for handling cans between the dairy and the railroad, the railroad and the bottling plant, and for emptying, washing and filling.

The item for expense of repairing and replacing cans is a considerable one. Considering the fact that three sets of cans are necessary (one set for milk in transit; one set of cans to be returned, and one set at the dairy as a reserve supply) approximately 450 cans are necessary to take care of the milk which is taken care of by one of these tank-equipped trucks. In other words, an investment of from \$1800 to \$2250 is necessary for cans, and this investment must be completely depreciated over a period of thirty months.

In addition, there is a loss of milk due to spillage and adhesion, averaging about one pint per can; there is the further cost of icing cans while in transit; and there is a loss, amounting to about 2 per cent during hot weather due to milk souring in the cans, even when every precaution is taken regarding heating and icing.

The experience of Floyd Dycus and his tank-equipped Autocars has proved that these excessive costs are overcome in shipping milk in tanks by motor truck.

The thermos construction of the tank prevents milk from souring and keeps it at a uniform temperature for several hours. There is little waste due to adhesion, with practically no expense for handling, either in shipping or in cleaning; and, in contrast to cans, the glass-lined tank has an almost indefinite life, barring accidents. The better conditions of sanitation in transporting milk by tank are self-evident.

The equipment on the Autocars owned by Floyd Dycus is made by the Elyria Enameled Products Company, of Elyria, Ohio. Each tank has a capacity of 1335 gallons.



Special Hauling Equipment Used by the Pevely Dairy Co.

Each tank is insulated with a covering of 3-in. cork, and this, in turn, is protected by a thin metal covering to prevent mechanical injury

## Lack of Funds Hampering Brake Lining Tests

The Bureau of Standards, Department of Commerce, will be unable to complete its work of testing brake linings because of a lack of funds. This announcement was made by A. A. Mowbray, commissioner of the Asbestos Brake Lining Association at its monthly meeting held during the show week in New York City. Mr. Mowbray read a letter from a government official to this effect and it was also stated that the tests to ascertain the various factors in lining were deemed very important by the bureau but unless money was appropriated the work would be discontinued.

The efforts of the bureau has resulted, it was stated, in a big saving, as the experimental work developed data which doubled the life of the lining. The bureau has been supplying car and truck manufacturers with special reports on brake lining. It is expected that the American Automobile Association and National Motorists' Association will launch a campaign designed to induce Congress to appropriate the necessary funds for the automotive section of the bureau to complete its work.

## Truck Paper and Trade-ins Discussed at N. A. C. C. Truck Convention

(Continued from page 11)

the store door delivery plan, Mr. Hurd stated that it was, to a certain extent, duplication service. In replies to questions as to the type of trucks and operators, he said that owing to the fact that the net income of a railroad was controlled, that the development of truck service in connection with railroads must necessarily be by large fleets which would begin operations with the hope of profits in time. Mr. Hurd quoted a number of interesting figures as to replacement by trucks of cars and trains. The subject was thoroughly discussed by the truck representatives.

"Progress in Building the Nation's Highways," was outlined by H. K. Bishop, chief of construction, U. S. Bureau of Public Roads. The greater part of the paper was given over to an analysis of the traffic survey made by the State of Connecticut. The address was followed by a movie which showed in a very interesting manner what goods roads can accomplish.

W. J. Flickinger, chairman, Committee of Bus Operation, American Electric Railway Association, described the experiences of railroads with busses. A brochure containing reports gathered by the association was distributed. Common Carrier Laws and Legislative Problems were discussed by H. Meixell, N. A. C. C., and G. F. Bauer, foreign trade committee of the chamber also addressed the members touching upon the World Motor Transport Congress which will be held in Detroit, May 21 to 24.



## Could You Pass by These Windows Without Stopping?



Fifty per cent good idea and fifty per cent industry can be employed to effect windows that will not only attract attention but will sell merchandise. The striking display at the top was used by the United States Tire Co., 1790 Broadway, New York City, to illustrate the effectiveness of the rubber spring shackles as used on Mack trucks. Note the seismograph at the left which has been developed by the International Motor Co., to register vehicle vibration. The lower picture shows a phase of the campaign instigated by the General Tire and Rubber Co., in merchandising their balloon tires.

# Fresno, Cal., Popularizing the Electric Truck

*How a Western City Has Reduced the Cost of Delivery in a Number of Industries. Fresno Water Corporation, Power Company and Several Other Concerns Now Using Electrics*

By J. S. MOULTON, San Joaquin Light and Power Corporation

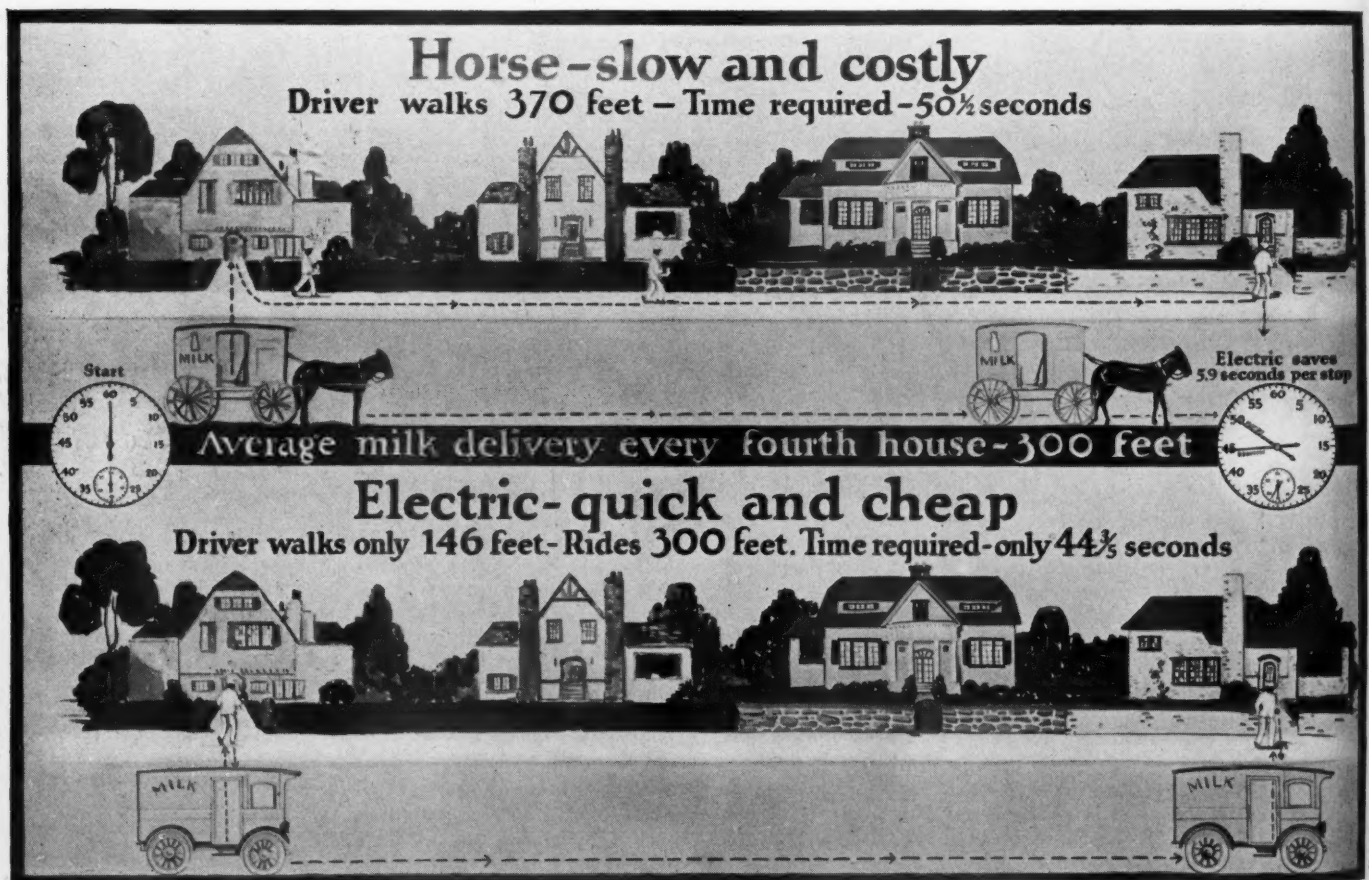
**T**HE rapid growth in the use of electric trucks during 1923 in Fresno, Cal. is a very good index of the increasing interest in the economy and reliability of this equipment for delivery purposes. The reasons for this interest and the accompanying increase in use is not hard to discover. The Industrial Research Department of the Chicago Tribune recently conducted a very complete investigation throughout the middle west of the relation between delivery costs and the total gross income. The results show a startlingly large proportion of the income is paid out for delivery. The exact figures for a number of industries follows:

Ice .....	45.8 per cent
Soft Drinks.....	20.2 per cent
Brick.....	19.9 per cent
Bakeries .....	19.8 per cent
Coal.....	15.2 per cent
Laundries .....	15.3 per cent
Ice Cream.....	14.9 per cent

A nation wide survey conducted by the United States Department of Agriculture shows that the delivery costs of dairy product is 12.1 per cent.

A reduction in delivery costs of 25 per cent, which is not at all an unusual reduction for electric trucks to make, greatly increases the profit or results in a lower cost to the consumer. For ex-

ample, in the ice business where the delivery cost amounts to 45.8 per cent of the gross income, a reduction of 25 per cent will increase a former profit of ten cents on the dollar to fourteen and a half cents on the dollar. Similarly, for dairy products, the increase will be from 10 cents to 13.03 cents. There are very few business men who would decline to make an investment which would increase the profit of their business by these amounts. Heretofore there has been a doubt in their minds that the electric truck would actually cut their delivery costs this amount. The figures submitted by concerns in many lines of business from all over this country have overcome this



Stop-Watch Tests Expose the Fallacy of the "Horse-That-Knows-the-Route"



doubt, however, and the electric truck is on the eve of a greatly increased use.

At the end of 1922 there were operating in Fresno three electric trucks in the daily use of the Benham Ice Cream Company. Of these trucks one was purchased second hand three and one half years ago after it had operated elsewhere for four years previously. A second truck was purchased new at the same time, and a third, early in 1921. It is interesting to note that this user was first interested in electric trucks not by the activities of a dealer but by reports made at various meetings of the ice cream manufacturers. Leaders in this industry from all over the United States told of the economical operation of the electric in their use. When the most progressive concerns in any field find any labor saving and money saving device which increases their profits, it is practically certain that other concerns in the same business can also profit by its use.

The Fresno City Water Corporation has three 1-ton trucks in operation supplying material to construction work, setting meters, running services, etc. These trucks average from 30 to 40 miles each day and because of their greater maximum speed, cover just as much territory each day as the gas cars which were formerly used. The electrics have operated at from 60 to 75 per cent of the gas car cost, a fact which has made the officials of the water company great boosters of the electric.

The Power Company has had in constant operation for the last eight months two 2-ton trucks transporting miscellaneous freight from the general warehouse to the freight sheds and to various construction jobs in and around Fresno. These are being supplemented with a one-ton truck for handling lighter work. This truck will make three of the four trucks used by the Stores Department in Fresno, electrical; the fourth, a 3½-ton gas truck, being used for transporting materials to other cities and towns in the San Joaquin Valley. The performance of the 2-ton trucks has been very excellent as both of these trucks have reduced the cost of hauling practically one-half. The electrics have shown greater speed through traffic conditions due to their rapid acceleration and ease in handling.

The reliability of the electric is well demonstrated by the fact that one of the Benham Ice Cream Company's trucks operated for twenty-two months without missing a single day's operation. This same concern purchased a fourth electric of three and one-half-ton capacity in May of 1923 and has under consideration the purchase of one or more to take care of the summer business of 1924.

From the three trucks operating at the first of the year the number has increased to sixteen in the middle of October. This increase has been brought about by the wide spread publicity accorded the electric and the necessity for many concerns to cut out every unnecessary penny of operating expense. The additional trucks have been divided among a dairy, an ice company, the power company and the water company.

The dairy started soon after the first

of the last year with two electrics. The ease and simplicity of operating these trucks together with the low costs were a source of gratification and a third electric was purchased soon after. These trucks are all operating on frequent stop routes with a power cost of thirty-five cents a day, each. Two more trucks of the same type were delivered about the first of November and ten more are on order for delivery during this year.

The ice company has in use two 2-ton trucks in their downtown delivery serv-

ice. They find that with these trucks the ground can be covered much more rapidly than with horses and their previous difficulty of properly hitching the animals when both men were away from the wagon has been eliminated. It is probable that additional equipment will be installed before next summer.

This remarkable growth is but a forerunner of the increase to come as Fresno, with its increasingly congested traffic conditions and narrow level streets, furnishes an ideal location for the electric.

## N. Y. Central Adopts Truck Service

**A**NNULLING its way-freight train, the Putman Railroad, a branch of the New York Central, has just substituted an automobile truck service in Westchester County to handle "less than carload" shipments between various stations from Yonkers to Brewster. The experiment is being made under direction of Superintendent Gerard Vantassel of Harlem & Putman Divisions.

While there has been a good deal of discussion as to the use of motor trucks by railroads, hitherto the Pennsylvania Railroad has been the only one actually to place trucks into operation. During 1923, motor truck service was established on 204 miles of the Pennsylvania Railroad's line and according to R. S. Hurd, Special Agent in charge of motor truck operation, eight trucks have replaced eight local freight train movements. The experiment being conducted by the Pennsylvania

Railroad has been watched with great interest by other railroads, and New York Central is first to follow in its footsteps.

Automobile trucks now take freight from the Hudson Division of the New York Central at Yonkers to Dunwoodie station on the Putman and all stations north as far as Yorktown Heights. Another truck collects and delivers freight between Yorktown Heights and Brewster, stopping at all intermediate stations.

Formerly a local freight train picked up and delivered all these smaller shipments, but there was so much delay loading and unloading at stations that the overtime wages paid the train crew became too costly. It is said by railroad employes that the company has found transportation by automobile truck cheaper, and besides there is a delivery and collection each day at every station, instead of every other day as formerly.



**A Novel Idea That is Bringing Increased Business**

An oil company in Kansas City, Mo., is employing a novel idea for advertising in using a specially constructed truck body. The body is a copy of a huge steel barrel and the likeness is carried out even to the fittings on the top and the rear. Entrance is gained through a door in the right side that swings outward on a special set of hinge-arms. The door is equipped with a lock and can be secured from the inside. The front is a white fine-meshed screen and this arrangement gives the driver perfect vision outward but the observer outside can barely see past the screen with a huge painting of the trademark of the company upon it. The rear end is one large door which is hinged at the top and opens onto a large compartment which is used for carrying special orders. The whole body is painted a vivid white upon which the brilliant colors of the advertising features stand out.

# A New System of Bus Lighting

*System Originally Developed for Lighting Anti-Aircraft Gun-Sights Now a Boon to Bus Operators. Many Advantages Result From System Employing Voltage Regulation in Improved Form*

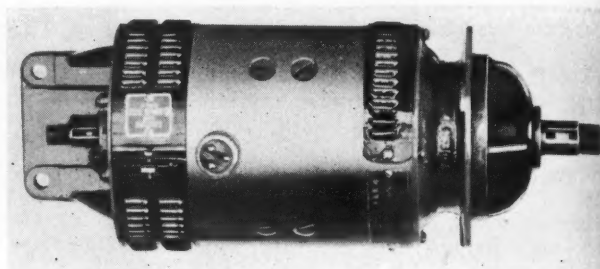
By A. S. SKINNER, The Leece-Neville Company, Cleveland, Ohio

**L**IGHTING systems on motor busses are today recognized as an important operating factor. No longer does the experienced operator view the electrical system as something he can regard indifferently, or take as a matter of course. Service tests have shown that abundant illumination is a builder and protector of revenue. The brightly lighted bus, it has been shown, attracts more patrons than one that is poorly lighted.

If a great volume of light were the only requirement of bus electrical systems, the equipment maker's problem would have been a simple one. But the requirements of the many forms of bus service not only made volume essential; they made it imperative to also have a dependable volume under all the varying conditions of day and night running. The safety of passengers in night operation made it necessary to insure the utmost reliability. In addition, it became vitally important to relieve the motor bus of many of the faults and hazards that are so common, but less serious, in private passenger cars.

Such has been the aim of manufacturers of lighting systems. Very early in the development of the bus business, a few automotive electrical companies foresaw

Leece - Neville Generator, One of the Units of the New System of Voltage Regulation for Bus Lighting.



the needs of this form of transportation and they have engaged in development work almost continuously.

The latest result of that development, just announced by the Leece-Neville Company, is a marked stride forward in lighting systems. It is an evolution of a manually operated system developed for the government during the war, to illuminate the sights on anti-aircraft guns. The principle then employed, and now further developed for bus work, was that of a voltage-regulated generator furnishing light without the use of a battery and the same time protecting the lamps and the generator from injury due to excessive rises in voltage. Under the principle employed in bus work, a storage battery, of course, is used, but without the misuse

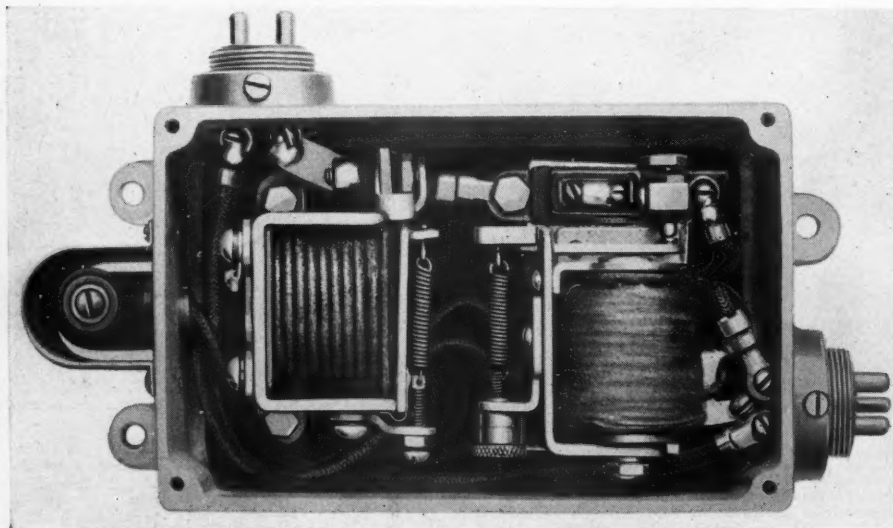
to which it is subjected in other methods of regulation. Preventing abuse and obviating the usual results of neglect are two important advantages of voltage regulation, although its primary virtue is an assured source of abundant light regardless of operating conditions.

## Generator Will Operate Lamps Direct

An interesting characteristic of the system is the fact that a disconnected battery terminal, or, in fact, the removal of the battery, will not interrupt the light as long as the engine runs, nor does it harm the generator to carry the entire lamp load. This is of particular importance to bus operators because it prevents interruption of vehicle service and reduces to a minimum the time needed for electrical attention.

The voltage regulated system is much simpler than the current-regulated system whose output is determined by the position of a third brush on the generator. The Leece-Neville Company has produced both types of equipment for different purposes, but it was not until this company had developed an efficient method of voltage regulation that the full benefits of such a system were obtained. The operation is quite different from the current-regulated system.

In the new system the current as well as the voltage is regulated. Therefore, with the generator set for a maximum of 15 volts when the battery is low, the current will flow from the generator to the battery at the highest rate for which the generator has been set. As the voltage of the battery rises due to the charge, the counter e. m. f. of the battery, or resistance causes the generator output to drop off until the battery voltage is equal to that of the generator voltage, after which



New Regulator in a System of Voltage Regulation for Bus Lighting, Developed by the Leece-Neville Company



only a trickling charge will flow from the generator to the battery. Voltage regulation will build up a battery quicker and protect the battery from overcharge, due to the fact that the resistance of the battery when charged is equal to the pressure of the current delivered by the generator. Unlike the current-regulated generator, the voltage regulated generator can be operated, connected to or disconnected from the battery. The voltage of the generator being held constant by the regulator, permits lamps to be operated directly from the generator and greatly prolongs their life. This feature of voltage-regulation assures light while the vehicle is in operation whether the storage battery is connected or not. The life of the battery is prolonged and the water does not decompose as rapidly as when being charged by a current-regulated generator, because the battery will absorb only the necessary charge. Current in excess of the battery's needs cannot be forced into it.

#### The Voltage Regulator

The regulator is a compact, enclosed instrument of the vibrating type, holding the generator voltage within fixed limits by placing in the field circuit a resistance which is cut in or cut out automatically according to the load on the generator.

The regulator is sealed to avoid tampering and to prevent its being opened except at authorized service stations or by one who fully understands it.

The value of voltage regulation to the bus operator has been established in severe service tests. In a twelve volt system with the storage battery disconnected, the generator carried a lamp load of fifteen 21-c. p. lamps or 315-c. p. These lamps created a load of approximately 18 amperes but the generator delivered 25 amperes, so that if the battery had been connected there would have been a 7-ampere charge going into the battery in addition to lighting the 15 lamps. With the battery connected, but in a discharged condition, the generator carried the lamp load and at the same time furnished a 7-ampere charge to the battery.

When a test switch was inserted in the line to change the current source from generator to battery and vice versa, the amount of illumination supplied by the generator alone, when driven at a normal speed, was equal to the illumination delivered by the battery in a fully charged state. During this operation the polarity of the generator was reversed without affecting the output. This does not harm the generator as the latter adjusts itself to the polarity of the battery.

In motor bus service where no two

runs are exactly alike, where either traffic or highway conditions are severe upon a generator, the advantages of the voltages of the voltage-regulated system are manifest. The previous difficulties of city service, with many stops and starts, or with intermittent periods of idling and full acceleration, resulted in batteries seldom receiving a charge sufficient to keep the battery in condition for long periods of night operation. On the other hand, under previous systems, the long runs in country districts kept the generators charging so continuously and at such a high rate that the batteries were damaged by the overcharge.

The natural result of these difficulties was the effort to produce an electrical system which would automatically regulate both voltage and current. The original principle as applied to anti-aircraft guns in 1917 was further developed by the Leece-Neville Company for the army air service and this company furnishes the government with voltage-regulated systems for Liberty aviation engines in the army air service.

The complete system has already been adopted as standard equipment by the White Motor Company, on the new model 50-A bus chassis, and by the J. G. Brill Car Co. as standard on their gasoline rail cars.

## Relation of Highways and Motor Transport to Other Transportation Agencies

Resolutions Adopted by National Transportation Conference Held in Washington, January 9th and 10th

1. The motor vehicle has proved its unquestionable value in our economic system, having greatly extended the farmer's field of operation, brought much additional land under cultivation and new sources of raw materials within economic reach of markets, quickened the industrial life and facilitated the processes of distribution.
2. The congestion of transportation today centers around the terminal areas of our great cities, where the railroads find the greatest difficulty in keeping pace with the public need, although their main tracks have sufficient capacity for the movements of more freight than is offered to them.
3. In spite of the foregoing fact, the railroads are constantly faced with a demand for more and better terminal facilities in the face of prohibitive real estate values and other stupendous obstacles to expansion.
4. The best interests of the public and of all transportation agencies lie in co-operation and the greatest opportunity for this co-operation is in the terminal areas.
5. Store-door delivery by motor truck is the greatest contribution which can be made to the solution of the terminal problem.
6. Organized motor transport can also relieve the railroads of various forms of uneconomical service, such as trap-car service, switching between local stations and shorthaul shipments within the terminal area. This will reduce yard congestion and release many cars for more profitable line haul.
7. To secure the fullest benefits from this organized motor transport, will require the utilization and further development of modern mechanical equipment.
8. Outside of the terminal area it is to the public interest, as well as to the interest of the respective carriers, that the economic limitations of each type of carrier be recognized, that the railroads be permitted to discontinue unprofitable service to which the motor is better suited, and that the motor abandon its efforts to handle general traffic over uneconomical distances. Unprofitable steam railroad service can in some cases be successfully replaced by the use of self-propelled railroad motor cars.
9. Rail lines can often advantageously extend or supplement their service by motor bus and motor truck lines, and in states where this is now prohibited, such restrictions should in the public interest be abolished.
10. To insure to the public reliability of service in all forms of motor transportation—sound financial organization, public regulation and continuous service are necessary.
11. The proper regulation of common carrier operations of motor vehicles, including the rates, should be handled by the existing authorities which now control the operations of other public carriers. It is believed to be to the best interests of all concerned that proper regulations of traffic and of size, weight and speed of motor vehicles by states and municipalities should be made uniform.
12. Trunk highways should be capable of carrying any vehicular traffic that is economically justified and should be constructed with particular attention to the proper design of well-co-ordinated highway systems.
13. Investigations now under way by the United States Bureau of Public Roads, state highway departments and other agencies to determine more fully the economic role of the motor vehicle should be vigorously prosecuted.

**Quality is synonymous with long life in Federal Motor Trucks. They have been manufactured for fourteen years with the one idea of giving many years of service—at lowest cost per year. Federal quality is amply substantiated in the high resale value. Thousands of Federals are now operating with over one hundred thousand miles to their credit. • • The Federal Selling Franchise is protection for your investment.**

*Another*  
**FEDERAL**  
*"Means Another Satisfied User"*

**THE FEDERAL MOTOR TRUCK COMPANY**  
Detroit, Michigan.





# EDITORIALS



## The Excise Tax on Motor Trucks

**M**UCH constructive work has been done by the National Automobile Chamber of Commerce, the Motor and Accessory Manufacturers' Association and other automotive organizations at Washington recently to have some of the obnoxious taxes removed, which have been placed on the automotive industry since the war.

The excise tax on trucks is one of these. The Ways and Means Committee was advised that this tax shows pure discrimination and should have been removed when the government removed the tax on railroad transportation. Following the appeal for removal of this tax much argument ensued on the grounds that the trucks should be heavily taxed because they do the most damage to roads. But this argument was met with the statement that or every fifty cents spent by the Federal Government on highways one dollar is collected from the automotive industry.

Furthermore, the tax on automobile repair parts, appropriately named the "misfortune tax," should also be removed. This tax amounts to \$144,000,000 annually. The automotive industry has labored under these taxes long enough. It is believed that some of these taxes will be repealed. The associations are doing their part in this work, but if dealers, dealer associations, garage and repair shops all over the country would telegraph or write their representatives on this matter it would help along the good work done by the national associations.

## Legislating Against the Curb Pump

**O**NE of the latest pieces of uneconomical legislation is that which has for its object the removal of the gasoline pump from the curb to the interior of buildings. A law has already been passed in Buffalo and New Orleans to this effect.

Whenever some local politician sees the need for getting into the limelight he immediately gets busy preparing a bill which in some way or other has something to do with automobiles. If his bill becomes a law it is surprising how quickly the same bill crops out somewhere else. And when the state legislatures meet, we find bills on the same subject cropping up all over the country. There is only one way to kill such legislation and that is to nip it in the bud before it has a chance to grow.

That is work which local dealers' organizations can do very successfully, if they are awake to their responsibilities.

Moving existing curb pumps into the interior of the garage, means an unnecessary expense to the garageman or dealer. It will put some gasoline stations out of business. We cannot see what good it accomplishes. If it is a part of a city beautifying plan, then it becomes class legislation, because for the same reason, fire-hydrants, trolley and telegraph poles, billboards, traffic guide posts, barber poles, etc., should all be abolished. Why place gasoline pumps inside of a building—doesn't that increase the fire hazard.

This is the type legislation which is not producing any good results, but simply wastes money. Changing the location of such pumps will cost hundreds of thousands of dollars in any fair-sized community. Placing the pumps inside of the building or adjacent to the doorways will also cause lots of unnecessary congestion around the garage or service station.

Dealers and garagemen are cautioned to be on the lookout for similar regulations in their communities.

## Hard Work Wins

**O**NE of our subscription solicitors recently covered the town of Noblesville, Ind. He visited one dealer who handled a line of passenger cars and trucks. This particular day it was raining and sleeting. Four salesmen were warming chairs. The dealer had two commercial jobs on the floor. When questioned about the truck business, he said there was no market for commercial jobs in Noblesville and the surrounding territory.

Over on the other side of the court-house square there is a small hardware dealer, whose place of business is near a fire plug. He has no display space in the store or in front on account of the restricted parking space. But in the past year, that hardware dealer, with the assistance of a big "lumber jack" to instruct drivers and to oil up the trucks, had delivered 52 trucks and did not own a cent's worth of trade-ins.

Parallel cases of this kind no doubt exists all over the country. It shows that the commercial car business needs plenty of salesmen who are willing to work. The chair warmer will never make a success at selling motor trucks.

# News of the Trade in Brief

## N. A. C. C. Urges Repeal of Burdensome Motor Taxes

Relief for the users of 15,000,000 motor vehicles in the form of reductions of the excise taxes on automobiles, trucks, tires, parts and accessories, was urged recently upon the Ways and Means Committee by the motor manufacturers comprising the National Automobile Chamber of Commerce.

Emphasizing the fact that the tax on repair parts is a "tax on misfortune" which has no parallel in the tax statutes of the country, C. C. Hanch, vice-president of the Chamber, who acted as spokesman, pointed to the wide uses of the motor car and stamped these taxes as oppressive measures which react directly upon the 4,500,000 farmers who today own cars as well as the vast army of factory workers, business men, doctors and others who have found the car essential to their business.

No attempt was made to insist that the total tax which amounts to \$144,000,000 annually should be lifted at this time. Instead Mr. Hanch asked that Congress in its scaling down of the tax burden should give each of the industries discriminated against, some measure of relief through a proportionate distribution of such cuts as may be made.

Calling the attention of the members of the committee to the fact that Congress has already recognized the inequity of the excise tax through repeals of such levies against railroad transportation, thermos bottles, hair dyes, perfumes, sporting goods, cosmetics and other commodities, Mr. Hanch congratulated them upon the sound business judgment which had

dictated their action and asked simply for an extension of the recognition to the motor industry.

Conceding the fact that the automobile industry had just passed through a successful year, Mr. Hanch expressed the belief that the purchases of automobiles in quantity had been due to the fact that the automobile dollar is today worth 111 cents as against the general dollar of 1913 and pointed out that the general dollar today buys but 62 cents of that of the pre-war period.

"The manufacturers want to make this dollar worth even more" he said, "but always they are confronted by an arbitrary, artificial barrier in the discriminatory 'stigma' war taxes which they cannot overcome and which makes the cost of individual transportation higher than it would otherwise be."

Following the presentation to the Ways and Means Committee, it was announced by Senator Edge of New Jersey that he would introduce bills similar to those of Congressman Clancy calling for a repeal of the several sections of the revenue act having to do with these levies.

## Electric Trucks Will be Prominent at N. E. L. A. Convention

Exhibits showing the application of electricity in its several phases will form an important part of the Forty-Seventh Annual Convention of the National Electric Light Association, which will be held at Atlantic City, beginning May 18th, 1924. Prominent among these exhibits will be those of the manufacturers of electric trucks and component parts.

## Ontario Highway Traffic Law Becomes Effective

Important new regulations affecting the use of motor trucks in the Province of Ontario have become law under a new Highway Traffic Act which is now being enforced. Under the revised statutes, any truck already registered in Ontario which weighs more than 10 tons with its load can only use the roads of the Province under a special permit system and such trucks are now permitted to carry a maximum load of five tons. In 1925, no motor truck and its load can weigh more than eight tons, otherwise it will be banned.

Vehicles with tires less than six inches in width must not have a greater load on any wheel than will exert a pressure of 500 pounds for each inch in width. Thus a five inch tire must not carry a greater weight than 2,500 pounds. For tires over six inches in width, the maximum weight per inch is 600 pounds, consequently an eight inch tire may carry 4,800 pounds.

During the months of March and April in each year, motor trucks rated at more than one ton must not carry more than half their rated load outside of cities and towns. During the same period, all other vehicles are restricted to a wheel load of 250 pounds for each inch of tire width.

All public garages must obtain a garage license from the Ontario Department of Highways and must keep a record of all motor vehicles bought, sold or wrecked by them, making a report to the Department of all such transactions within six days. All garage proprietors are also required to report all cars or trucks which remain on their premises for more than two weeks "without good reason."

## CONVENTIONS

- Albuquerque, N. M., May 26 to 31, 1924—U. S. Good Roads Exhibition.
- Detroit, Mich., May 19 to 21, 1924—National Service Congress of the National Automobile Chamber of Commerce.
- Detroit, Mich., May 21 to 24, 1924—First International Motor Transport Congress under the auspices of the National Automobile Chamber of Commerce.
- Detroit, Mich., June 3 and 4, 1924—Midsummer meeting of the Automobile Body Builders' Association, Hotel Statler.
- New Orleans, La., March 31 to April 5, 1924—Spring meeting of the Automotive Equipment Association.
- St. Louis, Mo., March 4, 1924—Mid-year meeting and dinner, American Electric Railway Association, Chase Hotel.
- Washington, D. C., June, 1924—Pan-American Highway Congress of the Pan-American Highway Mission.

## SHOWS

- Albany, N. Y., February 16 to 23, 1924—15th annual show of the Albany Automobile Dealers' Assn., State Armory. Passenger cars, trucks and accessories. J. B. Wood and L. Y. Long, Mgrs., Chamber of Commerce.
- Boston, Mass., March 8 to 15, 1924—22nd annual show of the Boston Automobile Dealers' Assn., Inc., Mechanics Bldg. Passenger cars, trucks, tractors and accessories. Chester I. Campbell, Mgr., 5 Park Sq., Boston.
- Calumet, Mich., April 7 to 12, 1924 (tentative)—10th annual Upper Peninsula Auto Show of Central Storage Co., and automobile dealers, Coliseum (40,000 sq. ft.). Passenger cars, trucks, tractors and accessories. Joseph A. Savini, Mgr., Calumet.

## Coming Events

- Charlotte, N. C., March 3 to 8, 1924—4th annual show of the Charlotte Automobile Merchants' Assn., Carolinas Exposition Bldg. (60,000 sq. ft.) Passenger cars, trucks, tractors and accessories.
- Deadwood, S. D., February 19 to 23, 1924—12th annual Black Hill Auto Show of the Deadwood Business Club. Auditorium. Passenger cars, trucks, tractors and accessories. F. R. Baldwin, Mgr.
- Goldsboro, N. C., April 21 to 26, 1924—4th annual show of the Chamber of Commerce and local automobile dealers at Co-operative Tobacco Warehouse. Passenger cars, trucks, tractors, accessories and industrial exhibits. W. C. Denmark, Sec., Box 546, Chamber of Commerce Bldg.
- Greenville, S. C., February 25 to 28, 1924—5th annual show of the Greenville Automobile Dealers' Assn., Textile Hall. Passenger cars, trucks, tractors and accessories. Eugene B. Smith, Mgr.
- Indianapolis, Ind., March 3 to 8, 1924—27th semi-annual show of the Indianapolis Auto Trade Assn., Auto Show Bldg. (60,000 sq. ft.) Passenger cars, trucks and accessories. John Orman, 338 N. Delaware St.
- Mankato, Minn., February 27 to March 1, 1924—2nd annual show of the Mankato Automobile Dealers' Assn., Armory (10,000 sq. ft.). Passenger cars and trucks. E. T. Dillner, Sec., 320 S. 2nd St.
- New York, N. Y., April 19 to 26, 1924—New York Electric Truck Show of National Electric Light Association.

- Omaha, Neb., February 18 to 23, 1924—19th annual show of the Omaha Automobile Trade Association, Municipal Auditorium. Passenger cars, trucks and accessories. A. B. Waugh, 1814 Douglas St.
- Portland, Me., February 25 to March 1, 1924—11th annual show of the Portland Automobile Dealers' Assn., Exposition Bldg. Passenger cars, trucks, tractors and accessories. Howard B. Chandler, Mgr., 3 Park Ave.
- San Bernardino, Cal., February 15 to 25, 1924—Automobile show at the 14th annual National Orange Show, in tent on Orange Show Grounds. Passenger cars, trucks, tractors and accessories. R. H. Mack, Gen. Mgr., Chamber of Commerce Bldg.
- San Francisco, Cal., February 16 to 23, 1924—8th annual show of the Motor Car Dealers' Assn., of San Francisco at Exposition Auditorium. Passenger cars, trucks, tractors, accessories, special tops and bodies. G. A. Wahlgreen, Mgr., 215 Humboldt Bank Bldg.
- Springfield, Ill., March 20 to 22, 1924—5th annual show of the Springfield Auto Dealers' Assn., at Springfield Arsenal. Passenger cars, trucks and accessories. Basil W. Ogg, Mgr., 213 East Capitol Ave.
- Syracuse, N. Y., February 25 to March 1, 1924—16th annual show of the Syracuse Automobile Dealers' Assn., Inc., at the State Armory. Passenger cars, trucks and accessories. C. H. Hayes, Mgr., 701 Eckols Bldg.
- Washington, D. C., March 8 to 15, 1924—Annual spring automobile show of the Washington Automotive Trade Assn., Convention Hall. Passenger cars, trucks and accessories. Rudolph Jose, Chm., 1118 Connecticut Ave.



## Meade Advocates Double Decked Busses at the S. A. E. Convention

**A** FLEET of 67 passenger busses having enclosed upper decks should easily transport 12,000 seated passengers per hour on a street of ordinary major capacity, while very few surface rail systems can do as well as this with their cars packed to a distressing degree.

This assertion, made by R. M. Meade, president of the Detroit Motor Bus Co., in a paper read before the convention of the Society of Automotive Engineers held January 22 to 25 in Detroit, was followed by discussion in which were brought out the advantages of double-decked busses on the public streets in helping to solve the city traffic congestion problem.

Mr. Meade believes that there is a great demand for a covered top for two deck busses which can easily be raised and lowered to suit weather conditions. "The covering of the roof robs the bus of its lure for those who love the open air and sky and sun," he says. "I have always aimed at, and hope yet to see developed, something in the nature of a one-man top that can be spread or furled instantly. Used in conjunction with drop windows of the light, flexible, transparent unbreakable glass that we shall have in due time, this will make an ideal covering."

Steam will eventually replace gas in motive power for heavy road vehicles, including motor busses, Mr. Meade maintains. "If one-half of the time and study spent to develop the internal combustion motor had been given to steam for propulsion of road vehicles, is there any doubt that it would be far in advance of its present position?" he asserts. "Think of the reduction of effort on the part of the driver that could be accomplished. The constant running of the motor and the lost time and motion of gear changes are wasteful in the extreme, but we tolerate them because at this time the explosion motor has the jump on other forms of motive power for the automobile."

If any doubts existed as to the advisability of holding the annual winter meeting of the S. A. E. at some other time and place than New York during show week, those doubts were dispelled by the unqualified success of the Detroit meeting. With a registered attendance of well over 700, and gatherings of anywhere from 75 to 200 or 300 interested members and guests at every technical session, the whole meeting was highly successful from this standpoint, while the program was one of the most interesting and complete that has ever been presented at these meetings.

At the Motor Truck Transportation Session, Robert C. Wright, of the Pennsylvania Railroad System, spoke on the U. S. Chamber of Commerce Report on co-ordination of railroad and motor-truck transportation, and the subject was

further discussed by A. T. Waterfall, L. R. Gwyn and others. R. D. Sangster of the St. Louis Chamber of Commerce told how this city is handling the delivery of L. C. L. freight and using motor trucks as a part of its transportation system. Another session was devoted to the motor bus, at which R. W. Meade delivered the paper mentioned above, and J. A. Emery on the field and future of this medium of passenger transportation.

Mr. Emery defined the various fields in which motor busses can operate profitably and expressed the view that motor vehicles will supplant electric cars in many cases when time comes for replacing present track equipment.

Speaking of the use of the truck in hauling L. C. L. freight, Mr. Wright of the Pennsylvania Railroad, said that there was undoubtedly a big field there but that the truck could not be depended upon to any great extent until it had assumed the same responsibilities as other common carriers as regards, taxes, regulations, etc. Truck haulers soon will accept such responsibilities, Mr. Wright thinks, because motor truck interests have declared themselves in favor of such a development and because it is necessary to proper utilization of the truck's ability.

F. C. Horning, who presided at the truck transportation meeting, summed up the general view when he pointed out that the picture could not be painted in solid white or solid black. Consideration of any specific means of co-ordination, must involve careful thought and a shading of opinion.

Brake performance studies made by the Bureau of Standards were discussed by W. S. James, and several interesting testing devices which have been developed in recent months were exhibited and explained. Henri Perrot, a French engineer who was responsible for much of the early four-wheel brake development, gave a very interesting talk on that subject, which brought forth very lively discussion from the proponents of the various types of braking systems.

Fundamental improvements in manifold design were described in a paper by A. M. Dean, J. W. Swan and C. A. Kirkhan. This construction is a uniform distribution type featured by a square section and horizontal branches from the header to the valve ports, so that there are no pockets in which unvaporized fuel particles may collect. Any liquid particles which do collect on the walls drain to the horizontal floor section, which exposes a maximum surface for the "picking up" of the unvaporized fuel by succeeding charges. Very little heat is used, just above the carburetor, to assist vaporization of heavy fuel particles, the design being worked out to deliver cool, dry gas to the cylinders.

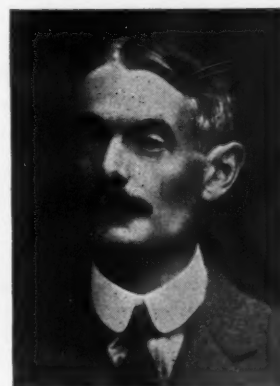
C. S. Kegerreis drew some comparisons

between ideal and commercial carburetor types, and J. A. C. Warner recounted some winter tests which confirmed the theory that heavy fuels have greater dilution than the lighter grades. "Controlling Detonation under High Compression" was the subject of an interesting paper by J. H. Halloway and G. A. Young, in which the influence of water jacket temperature and changes in the cooling system was brought out. This paper was a sequel to one presented a year ago, which covered the results of experiments to determine the effect of spark plug design and location and certain other mechanical factors on detonation or so-called fuel knocks.

The social side of the meeting was featured by the Carnival, which was revived this year with the holding of the winter meeting in Detroit. The attendance at this event was nearly 800, and it was voted a big success from every angle.

### Society of Automotive Engineers Elect Officers for 1924

H. M. Crane, technical assistant to A. P. Sloan, Jr., president of the General Motors Corporation was chosen president of the Society of Automotive Engineers at a dinner in Hotel Astor, New York, January 10. Mr. Crane has been prominent in the work of the society, particularly along the lines of fuel and research work.



H. M. Crane  
New President of S. A. E.

The following other officers were chosen: E. A. Johnston, first vice-president; W. R. Strickland, second vice-president; (motor car engineering); J. F. Max Patitz, second vice-president (tractor engineering); H. L. Pope, second vice-president (aviation engineering); T. B. Fordham, second vice-president (stationary internal-combustion engineering); W. C. Ware, second vice-president (marine engineering) C. B. Whittelsey, treasurer, W. A. Chryst, F. W. Gurney, A. J. Scaife, J. H. Hunt, A. K. Brumbaugh and M. P. Rumney were selected councilors.

Dr. M. L. Burton, president of the University of Michigan gave a brilliant talk on "That Mind of Yours."

E. S. Jordan presided as toastmaster. He was introduced by H. W. Alden, the retiring president of the society. "Bugs" Baer enlivened the meeting by his shafts of wit at the industry:

## Organize Overseas Booster Club

Another Booster Club was added to the roster on Jan. 10 when the representatives of export manufacturers met and formally organized the Automotive Boosters Overseas No. 9. This is the result of an informal meeting held on Dec. 19. The following officers were elected: H. L. Kraus, export manager for the Apco Mfg. Co., Biflex Corp. etc., president; F. J. Werner, Shaler Export Corp., vice-president; Charles H. Moulton, foreign service manager of El Automovil Americano, secretary and C. E. Murrell, of the Exide export department, treasurer. These with the following are the board of directors: R. A. Rodriguez, Rodriguez & Co.; Walter Rinck, Stevens & Co.; J. M. Homs, Pablo Homs, Inc.; P. F. Baillet, Sparks-Withington Co. and George E. Quisenberry, editor, El Automovil Americano. The following tentative committees were appointed to complete the organization: Meetings: F. J. Werner, chairman; Membership, Walter Rinck, chairman. Out of town members, P. A. Karl.

The new Booster Club will be limited to export executives, managers and representatives of manufacturing companies and somewhat along the same lines as other Booster clubs. About 25 joined the new organization. Preceding the meeting there was the usual dinner and a number spoke on export matters and how a Booster Club could bring about better merchandising and co-operation among the exporting branch of the industry.

## New Officers of M. & A. M. A. Announced for 1924

New York, January 25.—G. Brewer Griffin, manager of Automotive Equipment Department of the Westinghouse Electric and Mfg. Co., Springfield, Mass., has been elected president of the Motor and Accessory Manufacturers' Association, according to an announcement made by M. L. Heminway, general manager.

Mr. Griffin succeeds W. O. Rutherford, vice-president, B. F. Goodrich Rubber Company, Akron, Ohio, who has been president for the last year, and who will still retain his place on the Association Board of Directors.

Mr. Griffin began his automotive career in 1912 when he organized the automotive department of the Westinghouse Electric and Mfg. Co., at East Pittsburgh, Pa. Under Mr. Griffin's direction the automotive interests of Westinghouse have become world-wide in scope, with a modern plant at East Springfield, Mass., devoted exclusively to manufacturing starting, lighting, and ignition systems.

Mr. Griffin's organization ability was further displayed by his efforts in bringing to life the Fan Manufacturers' Association, the Arc Lamp Manufacturers' Association, and the Automotive Electric Association, of which he was president for four years. He is also a member and past president of the Illuminating Engineering Society and is an active member of the S. A. E. the Engineers' Club of New York, Nyasset Club of Springfield, Mass., and the Detroit Athletic Club.

All directors whose terms expired were re-elected at the annual meeting so that the Board remains absolutely the same. The resignation of Mr. Rutherford and the election of Mr. Griffin to the presidency, however, made necessary only a few changes in the ranking of officers. A. W. Copland, president, Detroit Gear and Machine Co., Detroit, Mich., continues as first vice-president; H. L. Horning, secretary and general manager, Waukesha Motor Co., Waukesha, Wis., as second vice-president; E. P. Hammond, president, Gemmer Mfg. Co., Detroit, Mich., as third vice-president.

J. M. McComb, vice-president, Crucible Steel Co. of America, becomes secretary and assistant treasurer instead of Mr. Griffin. L. M. Wainwright, president, Diamond Chain and Mfg. Co., Indianapolis, Ind., who has been treasurer of the association for more than 15 years, continues in this capacity.



G. Brewer Griffin

New President of M. & A. M. A.

Besides the directors and officers already named, the Board of Directors of the association includes the following: E. H. Broadwell, vice-president, Fisk Rubber Co., Chicopee Falls, Mass.; C. H. L. Flintermann, vice-president, Detroit Pressed Steel Co., Detroit, Mich.; C. E. Thompson, president, Steel Products Co., Cleveland, Ohio; E. P. Chalfant, chairman of the board, Gill Mfg. Co., Chicago, Ill.; Eugene B. Clark, president, Clark Equipment Co., Buchanan, Mich.

## Two Transportation Bodies Effect Merger

At the regular monthly luncheon of the New York Electric Motor Truck Club, held in January at Browne's Chop House, it was unanimously agreed that the Club should merge with the Transportation Committee of the Metropolitan Section of the N. E. L. A.

The action was the result of a discussion which had been carried on for some time, as it had been felt by members of both organizations that the original function of the Club had been more than fulfilled. Its work of creating good fellowship and friendly relations between manufacturers was completed and when the time came to broaden this scope many believed that more would be gained by combining rather than by operating two organizations along parallel lines.

## Schwab Says "No Saturation Point"

"In a growing country like ours there can be no such thing as a saturation point," said Charles M. Schwab, addressing the annual dinner of the National Automobile Chamber of Commerce at the Hotel Commodore, New York, Tuesday night of National show week. "Furthermore, the whole world is before use, and the possibilities in the direction of producing motor cars for the use of the peoples of the world is simply beyond limit."

Mr. Schwab pointed out that the automobile industry today is where the steel business stood in 1900, doing a record business but with a still greater future. He pointed out that the motor vehicle is an exceptionally high value in relation to its cost, but emphasized that the selling expense in the business is too high. He suggested consolidation as a remedy for reducing overhead.

Edward J. Cattell of the Philadelphia Chamber of Commerce was the second speaker of the occasion which was attended by 1000 automobile executives and their guests.

The annual Decorations for Meritorious Service were awarded to the following: A. P. Sloan, Jr., president General Motors Corporation; F. J. Haynes, president Dodge Brothers; Walter P. Chrysler, president Maxwell Motor Corporation; Roy D. Chapin, chairman, Hudson Motor Car Company; Edward V. Rickenbacker, vice-president, Rickenbacker Motor Co.

## Big Truck Section is to be Featured at Boston Show

The New England public will have an excellent opportunity to view the latest models in the motor truck field at the truck section of the 22nd annual Boston Automobile Show, March 8 to 15. As has been the custom in the past the trucks will occupy the whole basement of the Mechanics Bldg. The exhibit will include commercial cars, both gasoline and electric and tractors.

The show is under the auspices of the Boston Automobile Dealers' Association, Inc., and the Boston Commercial Motor Vehicle Association, Inc., and will be managed by Chester I. Campbell, veteran manager of Boston shows.

The passenger car section in the main floor, Mechanics Bldg. will include 68 makes of passenger cars.

The partial list of exhibitors of commercial cars is given below.

Abbot-Downing	Kelly-Springfield
American-LaFrance	Mack
Chevrolet	Mason Road King
Clydesdale	Maxim
Commerce	Netco
C-T Electric	Pierce-Arrow
Cunningham	Reo
Federal	Sanford
Ford	Snowmobile
Garford	Stewart
Graham Brothers	Wachusett
Gramm-Bernstein	Walker Electric
International	White
	Yellow Coach



## Willys Predict Gain in Motor Exports for Next Ten Years

"The next ten years will be a pleasant surprise in the export end of the automobile industry," said John N. Willys, chairman of the Foreign Trade Committee of the National Automobile Chamber of Commerce, addressing the Export Managers' Convention of that Association in its New York headquarters, Jan. 9th.

Exports during the past year amounted to 8 per cent of the total production, a figure which Mr. Willys believes will be considerably exceeded in the immediate future.

The chief obstacles in the foreign motor market were stated by John D. Mooney, member of the Foreign Trade Committee, to lie in the cost of operation. Many countries are penalizing their transportation by well nigh prohibitive taxes and by tariffs which add greatly to the initial price of the vehicle. In addition to the tax element in the operating cost is the high price of fuel. As the number of units increases the fuel cost will be lower since the overhead expense of distribution will be less. Other speakers were J. P. Stevenson, Trade Commissioner of the U. S. Bureau of Foreign & Domestic Commerce; E. F. Gaudineer of the Irving Bank Colombia Trust Co., and James Reiner of the National Surety Co.

The meeting favored a gradual adoption of battery ignition on all cars with left hand drive shipped abroad, to become fully effective on July 1, 1924.

Detailed preparations for the World Motor Transport Congress to be held in Detroit May 21-24, 1924, were presented by Geo. F. Bauer, secretary of the Foreign Trade Committee, which consists of John N. Willys, J. D. Mooney, H. M. Robins (Dodge), Jay Rathbun (White), H. B. Phipps (Hudson), Howard S. Welch (Studebaker).

## Body Builders Ask Repeal of War Excise Taxes

The vital necessity of some relief from the war excise taxes as they apply to the automobile industry loomed as the most significant problem brought before the members of the Automobile Body Builders Association in semi-annual convention at the Waldorf-Astoria, New York, during automobile show week. Speakers presented the various phases of the subject before a mass meeting, at which were present representatives of other associations, interested dealers and distributors as well as members of the A. B. B. A.

The principle speakers at this session were Harry Meixell, secretary of the Legislative Committee of the N. A. C. C. and Norman C. Damon, associate of Pike Johnson, manager of the N. A. C. C. Washington office.

For many months the resident representatives in Washington of the Automobile Body Builders Association have been working in close co-operation with the Washington office of the N. A. C. C. on taxation and other matters and when three bills to repeal war excise taxes on motor vehicles were introduced by Hon. R. H. Clancy in the House of Representa-

tives, the Association placed the services of its representatives at the disposal of Mr. Clancy and enlarged its staff to carry on the increased activity.

Chester A. Humel of the American Coach & Body Co., acted as chairman of the meeting. S. H. Gardner of the Association was made secretary.

The following resolution was unanimously adopted at the legislative mass meeting:

WHEREAS: The fourteen million users of Automobiles, Busses, and Commercial Vehicles desire to pay their fair share of taxation for the support of the Government, the States, Counties and Municipalities, including the building and maintenance of good roads, and

WHEREAS: The time has come when the special War Excise Taxes may be reduced, or repealed in accordance with the traditional peace-time policy of our Government not to discriminate against any industry, and

WHEREAS: In the year 1923 the new owners of the 4,014,000 Motor Vehicles (including parts), paid special Federal Excise Taxes in the enormous sum of \$155,000,000 in addition to the millions paid in Gasoline Taxes, State License Taxes, Corporation Taxes, City, State, Township, County and other special Taxes, and

WHEREAS: These special War Taxes enhanced the price of the Motor Vehicles sold in 1923 by an average amount of \$38, bringing the average retail price of an Automobile to \$811 and the average price of a heavy duty Commercial Car to \$1080, and

WHEREAS: Motor Vehicles have for years been, and will in increasing percentage be, an integral part of the Transportation System of the Country and have proven their economic value in transportation, especially in relieving the Railroads of their unprofitable short hauls of commodities and taking care of congestion at the Terminals, (the big problem of the Railroads), and

WHEREAS: Over one-half of all Motor Vehicles are used by farmers at a proven economic gain of over 50 per cent in haulage cost and at the same time extending the farmers' radius of recreation, thus making life on the farm more attractive, and

WHEREAS: The entire automobile industry including three million employees and fourteen million automobile users contribute more than their fair share of taxation, and

WHEREAS: Many industries that come under the luxury class have obtained a repeal of the War Excise Taxes, therefore be it

RESOLVED: That we, the AUTOMOBILE BODY BUILDERS' ASSOCIATION, in behalf of all those connected with or employed by the manufacturers and distributors of Motor Vehicles and allied lines, and in behalf of the users of Automobiles, Busses and Commercial Wagons respectfully desire to state that we are opposed to the further continuance of special War Taxes upon essential industries, especially upon Motor Vehicle Transportation; we, therefore, respectfully petition the President and Congress to repeal these Taxes, and to this end support Bills H. R. Nos. 2893, 2892 and 2891 presented to the House of Representatives by the Hon. Robert H. Clancy of Detroit, Michigan, and be it further

RESOLVED: That a copy of this Resolution be sent to President Coolidge, the Hon. A. W. Mellon, Secretary of the Treasury, and to each member of the Sixty-Eighth Congress.

## Mexican Railroad Increases Its Motor Rail Car Equipment

Ten additional motor rail cars with trailers have been added to the equipment of the Ferrocarril de Monte Alto, operating between Mexico City and Antizapan, carrying passengers and light freight.

Since May, 1922, a milk train with trailers has made two daily round trips between Pedregal and Mexico City. A train between Tlanepantla and Pedregal makes daily trips. During the first year these trains carried 363,000 passengers.

It is proposed to operate similar trains from Toluca to Tenango and San Juan, also between Chalchicomula and Tlalchichuca in the State of Puebla.

## Bassick Alemite Company Acquires Stock of E. S. Evans

Completion of one of the largest stock transfers in the automobile industry in months, whereby the Bassick Alemite Co., of Chicago, and Bridgeport, Conn., secures 51 per cent of the stock of E. S. Evans & Co., Inc., automobile loading experts of Detroit, and E. S. Evans becomes a large stockholder and director in the Bassick company, is announced by Mr. Evans.

Though financial details were not made public, net assets of the Evans company, as of January 1, were given as \$1,600,000. Net profits for 1923 were more than \$300,000, the largest in its history. The stock is closely held.

The report, the transfer, says:

E. W. Bassick, president of the purchasing company, the chief product of which is Alemite, became attracted to Mr. Evans and his company last fall, largely through Mr. Evans' unusual manufacturing and merchandising methods, his elimination of middleman's profits, and because of the tremendous savings, especially in timber, that the adoption of his methods have meant to the automotive industry. The Evans company supplies nearly 90 per cent of the loading devices used by motor car manufacturers the world over. A lumber and labor saving to automobile makers of \$50,000,000 over previous loading practice has been effected by the company over methods used prior to its formation. The company has manufacturing plants in Detroit, Memphis, South Bend, Ind.; Jackson, Miss.; York, Ala.; Sumner, Wash., and Burlington, Ont., with sawmills in Alabama, Louisiana and Texas.

Mr. Evans continues as president and general manager of the Evans company and will also supervise the Bassick company's business in the middle west.

## Gramm-Bernstein in Good Financial Condition

With the effecting of a complete reorganization, the Gramm-Bernstein Motor Truck Co., of Lima, Ohio., is said to have started the month of February without a dollar of indebtedness. Outlook for the year's business at this time is very bright.

The officers of the company are M. Bernstein, president; B. A. Gramm, vice-president; E. G. Kirby, secretary, and Dudley Bernstein, treasurer. W. J. Gramm is chief engineer and the first four named, together with E. B. Mitchell, G. V. L. Emerson and K. S. Goodin are directors. The company's business is operated by an executive committee composed of B. A. Gramm, E. G. Kirby and M. Bernstein.

## Trucks Gain in Spain

A movement to drive two-wheeled mule carts from the streets of Madrid, Spain has resulted in a wider market for trucks but American manufacturers should endeavor to grant better credit terms if they wish to compete effectively with French and Swiss trucks, says the Automotive Division, Bureau of Foreign and Domestic Commerce.

## Personal Items

**Clayton A. Eddy** has joined the Industrial Advertising Co. of Detroit. For five years, Mr. Eddy was manager of advertising and sales promotion of the American Blower Co., Detroit, and for two years previous was assistant advertising manager of the Studebaker Corp. of America.

**Sid G. Harris**, automotive engineer, has been added to the Metropolitan sales staff of Smith & Gregory, 121-123 W. 52nd St., New York City, distributors of Gruss air springs, and manufacturers of tire carriers, bumpers, baggage racks, etc. Mr. Harris has been associated with the Sterling Engine Co., the Kernach Manufacturing Co. Agency, and the Federal Motor Truck Co., Inc., on sales and service in Westchester county, New York.

**P. K. Hexter** of New York City has been appointed vice-president and director of sales of the Selden Truck Corp., Rochester, N. Y. Mr. Hexter was formerly Eastern sales manager of the Republic Motor Truck Co., vice-president and general sales manager of the Day-Elder Motor Corp.

**Noah G. Klove** has disposed of his interests in the Sherman-Klove Co., Chicago, manufacturers of milled nuts and cap screws of which he was an officer and assistant manager for several years, and will withdraw from active participation. Mr. Klove has not decided what his new work will be but owing to his several years' experience in motor truck manufacturing it is likely that he will enter this phase of the industry.

**Peirce Lewis** has been appointed advertising and sales promotion manager of the Truscon Steel Co., and will be located at the home office and plant in Youngstown. Mr. Lewis' experience covers service with the Kawneer Manufacturing Co., and the Detroit Steel Products Co., in advertising and sales capacities.

**I. E. Loveland**, formerly service engineer of the Remy Electric Co., Anderson, Ind., has been named service manager of that organization to succeed R. K. Evans who has joined the staff of the General Motors Export Co., at New York City. Mr. Evans will later be assigned to a foreign field.

**Edward E. McCoy**, president of the Rees Mfg. Co., of Pittsburgh, Pa., has been elected director and vice-president of the Third National Bank of Pittsburgh. Mr. McCoy remains the active head of the Rees company in addition to handling the new duties of his position with the bank.

**C. W. Moody** has organized the Moody Motors, Inc., 503 W. 56th St., New York City, and will distribute Mason Road King trucks in Long Island, Brooklyn, New York, Westchester and Rockland counties. He was formerly eastern district and export manager of the United States Motor Truck Co., Covington, Ky.

**Earl W. Northrop**, formerly sales engineer of the J. W. Murray Manufacturing Co., Detroit plant, has been promoted to the position of assistant manager of that plant.

**F. C. Pruitt** has been appointed South-eastern district manager for the Detroit Steel Products Co., in their replacement spring division. Mr. Pruitt has been identified with the southern automotive trade for a number of years. He will maintain headquarters in the Jefferson County Bank Bldg., Birmingham, Ala.

**C. B. Seger**, president of the U. S. Rubber Co., has been named president of the U. S. Rubber Export Co., Ltd. He succeeds E. H. Huxley, resigned. **Herbert E. Smith** has been appointed general manager of the Export organization.

**Roger Sherman**, Chicago attorney, has been elected to the Board of Directors of the Continental Motor Corp. to fill the vacancy caused by the death of J. F. Bourquin.

**Clyde Wisenburgh** has joined the sales organization of the U. S. Ball Bearing Mfg. Co., Chicago, Ill. Mr. Wisenburgh was formerly sales representative of the Standard Bearings & Equipment Co., Plainfield, N. Y.

## Trade Changes

**The Texas Motor Truck Equipment Co.**, Dallas, Tex., has moved from 406 N. Lamar St. to 1302 Patterson Ave. This concern which is under the management of Frank J. Grunden handles hydraulic hoists, hand hoists, steel dump bodies and Mead-Morrison truck winches and cranes.

**The Hallenberg-Wagner Motor Co.**, Ford dealer, announces the formal opening of its new building at 5630 Gravois Ave., St. Louis, Mo. The building is 75 x 125 ft., one story with a service yard 40 x 125 ft. It is said to be one of the most up-to-date automotive buildings in the St. Louis district.

**The Selden Truck Corp.** announces the opening of a direct factory branch in Boston, the Selden Sales & Service Co. of Mass., located at 1121 Commonwealth Ave. Chas. McDowell, for many years associated with the sale and service of Selden trucks in the Boston territory, will manage the new branch.



**R. F. Frizelle**

Recently appointed Manager of Sales Promotion for the Wood Hydraulic Hoist and Body Company, Detroit, Mich.

**The North East Service, Inc.**, Paris Branch, has moved to new and larger quarters at 17 Rue Villaret de Joyeuse, in the center of the Parisian automobile section. This branch is under the supervision of R. J. Kelleher, who has been in charge since 1919.

**The Bastian-Blessing Co.** is now located in new and spacious quarters at 240-258 E. Ontario St., Chicago.

**The National Radiator and Manufacturing Co.**, is the new corporate name of the National Can Corp., 2566 E. Grand Blvd., Detroit, Mich.

**The American Coil Spring Co.**, of Chicago, has leased space in the warehouse of Edgar T. Ward's Co., 1455 W. 37th St., Chicago, for a term of years and has installed factory equipment.

**The Ramspring Bumper Co.**, has moved its factory and general offices to new and larger quarters at 5025-5051 Wabash Ave., Chicago. The company produces the Ramspring bumper.

**The Multibestos Co.**, has opened a branch in its own building, 1241 Michigan Ave., Chicago. The new branch will afford Multibestos customers better service in the Chicago district.

## Literature

**Electrical Equipment of the Motor Car.** By D. P. Moreton and D. S. Hatch. The first four chapters of this compact volume are designed to give the automobile electrical student and the repairman, a practical knowledge of fundamentals of electricity. From there the book goes into the subject of batteries, magnetism, generators and motors, lighting and ignition systems, etc. Profusely illustrated, this book is a commendable contribution to the subject of automotive electricity. Price, \$3.50. U. P. C. Book Co., Inc., 239 West 39th St., New York City.

**Economics of Motor Transportation.** The purpose of this volume is to explain how the motor truck and the bus can be operated more effectively and profitably and to explain the correct way to analyse the problem of when to replace horses with motor trucks. The book is conveniently arranged, is clearly and interestingly written. George W. Grupp is the author. D. Appleton & Co., New York, publisher.

**The Motor Truck, Applied Mechanics For Owners and Drivers.** By Edward E. La Schum, general superintendent, motor vehicle equipment, American Railway Express. A book written to familiarize the motor truck operator with the general principles of operation of his truck that he may get the most out of it. There is an excellent chapter on "Record of Performance and Maintenance." U. P. C. Book Co., Inc., 239 W. 39th St., New York City.

**The United States Air Compressor Co.**, Cleveland, Ohio, is issuing a new booklet illustrating their various "Usaco" products. Contained therein are several illustrations showing the different departments at work. A table regarding proper tire inflation is also given.

**Torchwell Equipment Co.**, Fulton & Carpenter Sts., Chicago, has issued its twenty-third catalog, illustrating and describing their various products. Full information, as well as prices and specifications are given in detail.

**Westinghouse Elec. & Mfg. Co.**, of Springfield, Mass., has a new catalog describing its new complete line of starting, lighting and ignition equipment.

**Federal Pressed Steel Co.**, Milwaukee, Wis., describes its complete line of Federal bumpers in its new catalog No. 11. Free on request.

**The Fort Smith Body Co., Inc.**, Fort Smith, Ark., has issued a new catalog describing its complete line of commercial bodies, cabs and windshields. The booklet is well illustrated and contains specifications of all products manufactured.

**North Bros. Mfg. Co.**, Philadelphia, announce the publication of a new catalog describing its Yankee Tools. Booklet is printed on good quality paper and pages are attractively and interestingly prepared. Free on request.

**Waukesha Motor Co.**, Waukesha, Wis., has issued a booklet describing its new Ricardo Head. Full explanation with illustrations of this head, which involves the turbulence principle, is given in detail.

**Societe Anonyme Des Acieries Cl Devant Georges Fischer** announces the publication of its latest illustrated catalog of the GF Steel Road Wheels for motor trucks. This European firm, which is located at Schaffhouse, Switzerland, is one of the leading manufacturers of electric steel castings and electric steel wheels on the continent.



# Replacement Table—Corrected Monthly

Including Piston Ring Sizes, Carburetor Sizes, Hose Sizes, Fan Belt Sizes, Brake Lining Sizes and Truck Frame Dimensions

\*Note: Under Carburetor Inlet Diameter Will be Found Either the Size of Main Air Intake or the Gasoline Fuel Line  
Fan Belt Type: V—V-Shape, F—Flat, R—Round

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING				FRAME										
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service		Emergency		Length		Width								
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter ★	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Ace 40-1½	3	1	1	1	V	7	1½	8	1½	40½	2	F	12	3½	1	4	12	3½	1	4	122½	76½	215½	32	9
Ace 60-3	3	1	1	1	V	10	2	15	1½	42½	2	F	13½	3½	1	4	13½	3½	1	4	Opt	84½	241	34	9½
Ace 20-1	3	1	1	1	H	11	1	11	1	38½	1	F	11½	3½	1	2	11½	3½	1	2	110½	63½	194	34	11
Ace 30-1½	3	1	1	1	V	11	1	11	1	38½	1	F	12	3½	1	2	12	3½	1	2	110½	63½	194	34	10½
Ace 40-2	4	1	1	1	V	8	1	11	1	40	1	F	12	3½	1	2	12	3½	1	2	123½	74½	208	34	9½
Ace 40L-2	4	1	1	1	V	11½	1	11½	1	39½	1	F	12	3½	1	2	12	3½	1	2	123½	74½	214½	34	10
Ace 60-2½	4	1	1	1	V	11½	1	11½	1	39½	1	F	13	3½	1	2	13	3½	1	2	132½	79½	223½	34	10
Ace 60L-3	4	1	1	1	V	11½	1	11½	1	39½	1	F	13	3½	1	2	13	3½	1	2	140½	79½	235½	34	10
Ace K (Bus)	4	1	1	1	V	12½	1	12½	1	41½	1	F	15½	3½	1	2	15½	3½	1	2	220½	127½	312	41½	6
Ace 90-3½	4	1	1	1	V	10	1	10	1	40½	1	F	15½	3½	1	2	15½	3½	1	2	150½	95½	243	36	10½
Ace 90L-4	4	1	1	1	V	10	1	10	1	40½	1	F	15½	3½	1	2	15½	3½	1	2	153½	96½	255	37	10½
Ace 125-5	4	1	1	1	V	10	1	10	1	40½	1	F	18	4	1	4	18	4	1	4	159½	99½	261	37	10
American-LaFrance 1R	3	1	1	1	V	9	1	9	1	45	1	F	29	4	1	4	1	46½	2	2	108	60	207	33	10
American-LaFrance 2R	3	1	1	1	V	9	1	9	1	40½	1	F	17	3½	1	4	17	3½	1	4	132	81	242½	33	10
American-LaFrance 2R	3	1	1	1	V	9	1	9	1	40½	1	F	17	3½	1	4	17	3½	1	4	156	98	266½	33	10
American-LaFrance 2R	3	1	1	1	V	9	1	9	1	40½	1	F	17	3½	1	4	17	3½	1	4	180	110	290½	33	10
American-LaFrance 3R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	118	81	216½	33	10
American-LaFrance 3R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	144	90	244½	35	9
American-LaFrance 3R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	168	104	268½	35	9
American-LaFrance 3R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	192	114	292½	35	9
American-LaFrance 3R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	210	125	310½	35	9
American-LaFrance 3R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	104½	71½	211	35	9
American-LaFrance 3R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	120½	89½	227½	35	9
American-LaFrance 5R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	144	90	244½	36	10
American-LaFrance 5R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	168	104	268½	36	10
American-LaFrance 5R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	192	114	292½	36	10
American-LaFrance 5R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	210	125	310½	36	10
American-LaFrance 5R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	104½	71½	211	36	10
American-LaFrance 5R	3	1	1	1	V	11½	1	11½	1	42	1	F	21	4	1	4	21	4	1	4	123	90	229½	36	10
Armleder 21-1½	4	1	1	1	V	12	1	16½	1	31½	1	F	11	3½	1	4	11	3½	1	4	Opt	Opt	Opt	32	9½
Armleder 40B-1½	4	1	1	1	V	10	1	11½	1	33½	1	F	11	3½	1	4	11	3½	1	4	Opt	Opt	Opt	32	9½
Armleder 40C-1½	4	1	1	1	V	8½	1	11½	1	34	1	F	11	3½	1	4	11	3½	1	4	Opt	Opt	Opt	32	9½
Armleder KWC-3½	4	1	1	1	V	12	2	16½	1	35½	1	F	37	3	1	1	15½	3½	1	8	Opt	Opt	Opt	36	10
Armleder KWC-3½	4	1	1	1	V	10	1	16½	1	35½	1	F	37	3	1	1	15½	3½	1	8	Opt	Opt	Opt	36	10
Armleder HWB-2½	4	1	1	1	V	10½	1	11½	1	33½	1	F	13	3½	1	4	13	3½	1	4	Opt	Opt	Opt	32	10
Armleder HWC-2½	4	1	1	1	V	8½	1	11½	1	34	1	F	13	3½	1	4	13	3½	1	4	Opt	Opt	Opt	32	10
Atterbury 20R-1½	4	1	1	1	V	8	1	14	1	38½	1	F	11	3½	1	4	11	3½	1	4	122½	72½	211½	34	9½
Atterbury 22C-2½	4	1	1	1	V	10½	1	16	1	40½	1	F	13	3½	1	4	13	3½	1	4	129½	78½	225	34	9½
Atterbury 22D-3½	4	1	1	1	V	10½	1	16	1	40½	1	F	15	3½	1	4	15	3½	1	4	142½	93½	242	37½	8
Atterbury 22D-3½	4	1	1	1	V	14	2	20½	2	40	2	F	17½	4	1	4	17½	4	1	4	157½	80½	263	37½	10
Autocar XXI-F-1½	4	1	1	1	V	5	1	9½	1	49	2	F	16½	2½	1	4	13	2½	1	4	91	67	156	34	9½
Autocar XXI-G-1½	4	1	1	1	V	5	1	9½	1	49	2	F	16½	2½	1	4	13	2½	1	4	114	90	179	34	10
Autocar XXVI-M4-6	3	1	1	1	V	3½	1	3½	1	49½	2	F	25½	2½	1	4	25½	2½	1	4	140	80½	223	34	10
Autocar XXVI-L4-6	3	1	1	1	V	3½	1	3½	1	49½	2	F	25½	2½	1	4	25½	2½	1	4	176	116½	259	34	10
Autocar XXVII-H3	3	1	1	1	V	3½	1	3½	1	47½	2	F	22½	2	1	4	22½	2	1	4	131½	76	213	34	10½
Autocar XXVII-K3	3	1	1	1	V	3½	1	3½	1	47½	2	F	22½	2	1	4	22½	2	1	4	155½	100	237	34	10½
Available J-H-1½	4	1	1	1	V	11	1	14	1	40	2	F	48	2½	1	4	36	2½	1	4	120	80½	201½	32	9
Available J-H2	4	1	1	1	V	12	1	14	1	40	2	F	48	2½	1	4	36	2½	1	4	120	84½	212	32	9
Available J-H-2½	4	1	1	1	V	11	1	14	1	40	2	F	13½	3½	1	4	13½	3½	1	4	144	85½	226½	32	9
Available J-H3½	4	1	1	1	V	12	1	14	1	42	2	F	16	3½	1	4	16	3½	1	4	168	106½	254½	36	9
Available J-H5	3	1	1	1	V	12	2	16	2	40	2	F	18	4	1	4	18	4	1	4	168	112½	263½	38	9
Bessemer G-1	3	1	1	1	V	11½	2½	10	2½	42	1	V	46	2½	1	2	44	2½	1	2	98½	58½	182½	34	.....
Bessemer H-2-1½	3	1	1	1	V	11½	2½	10	2½	43	1	V	16½	2	1	2	16½	2	1	2	116	76	203	34	.....
Bessemer J2-2½	3	1	1	1	V	12	1½	5	1½	36	1	V	18½	2½	1	2	18½	2½	1	2	142½	92½	229	34	.....
Bessemer K2-4	3	1	1	1	V	11½	2½	10	2½	39½	1	V	55	3½	1	2	33	4½	1	1	157½	108	249	38	.....
Bethlehem KN-1	3	1	1	1	V	8½	2	9½	2	35½	1	F	20½	1½	1	2	20½	1½	1	2	89½	56½	175	32	10½
Bethlehem GN-2	3	1	1	1	V	8½	2	9½	2	40½	1	F	51	2	1	1	37	2½	1	1	116	74	208½	34½	9½
B																									

## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING				FRAME										
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service		Emergency		Length		Width								
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Front of Chassis
Clinton 2	4	4	1	1	H	11	1 1/4	12	1 1/4	36 3/4	2	2	F	11 1/4	13 1/4	3 1/4	4	4	4	4	131	81	233	33 1/4	9
Clinton 3	4	4	1	1	H	11	1 1/4	12	1 1/4	36 3/4	2	2	F	11 1/4	13 1/4	3 1/4	4	4	4	4	166	102	270 1/2	38 1/4	9 1/2
Clinton 4	4	4	1	1	H	11	1 1/4	12	1 1/4	36 3/4	2	2	F	11 1/4	13 1/4	3 1/4	4	4	4	4	163	105	270 1/2	38 1/4	8 1/2
Clinton 5	4	4	1	1	H	11	1 1/4	12	1 1/4	36 3/4	2	2	F	11 1/4	13 1/4	3 1/4	4	4	4	4	206 1/2	115	318	38	10
Clinton 5-7	4	4	1	1	H	11	1 1/4	12	1 1/4	36 3/4	2	2	F	11 1/4	13 1/4	3 1/4	4	4	4	4	130 1/2	91	242	38	8
Clydesdale 120B-5-6	3	3	1	1	V	9	1 1/4	14	1 1/4	46 1/4	2	2	F	16	16	3 1/4	4	4	4	4	131			38	
Clydesdale 90-3 1/2-4 1/2	3	3	1	1	V	9	1 1/4	14	1 1/4	46 1/4	2	2	F	16	16	3 1/4	4	4	4	4	143			33 1/4	
Clydesdale 65EX-2 1/2-3	3	3	1	1	V	11	1 1/4	12	1 1/4	41	1 1/4	1 1/4	F	13 1/4	13 1/4	3 1/4	4	4	4	4	132			34	
Clydesdale 65X-2 1/2-3	3	3	1	1	V	11	1 1/4	12	1 1/4	41	1 1/4	1 1/4	F	13 1/4	13 1/4	3 1/4	4	4	4	4	137			34	
Clydesdale 42-1 1/2-2	3	3	1	1	V	15	2	12	2	41	1 1/4	1 1/4	F	11 1/4	11 1/4	2 1/4	4	4	4	4	117			34	
Clydesdale 20-1 1/2	3	3	1	1	V	15	2	12	2	41	1 1/4	1 1/4	F	11 1/4	11 1/4	2 1/4	4	4	4	4	95			34	
Clydesdale 18-1 1/2	3	3	1	1	V	9	1 1/4	9	2	41	1 1/4	1 1/4	F	11 1/4	11 1/4	2 1/4	4	4	4	4	95			34	
Clydesdale 10-1 1/2	3	3	1	1	V	9	1 1/4	9	2	41	1 1/4	1 1/4	F	11 1/4	11 1/4	2 1/4	4	4	4	4	109			34	
Clydesdale 10A-1 1/2-1 1/4	3	3	1	1	V	10	1 1/4	12	1 1/4	39	1 1/4	1 1/4	F	23	23	1 1/4	4	4	4	4	Opt	Opt	Opt	32 1/2	10
Columbia H-1 1/2	3	3	1	1	V	10	1 1/4	12	1 1/4	39	1 1/4	1 1/4	F	26	26	2	4	4	4	4	Opt	Opt	Opt	32 1/2	
Columbia G-2 1/2	3	3	1	1	V	11	1 1/4	13	1 1/4	42	2	2	F	26	26	2	4	4	4	4	92 1/2	53 1/2	193	34	
Columbia K-3	3	3	1	1	V	10	1 1/4	10	2	44	2	2	F	50	50	2	4	4	4	4	117	75	210	34	
Commerce 9-1500	4	4	1	1	V	10	1 1/4	9 1/2	1 1/4	39 3/4	1 1/4	1 1/4	F	13	13	3 1/4	4	4	4	4	132	84	228 1/2	32 1/4	1
Commerce 14B-3000	4	4	1	1 1/4	V	9 1/2	1 1/4	15 1/2	1 1/4	33 1/2	1 1/4	1 1/4	F	12	12	3 1/4	4	4	4	4				32 1/4	
Commerce 25B-5000	4	4	1	1	V	7 1/2	1 1/4	9 1/2	1 1/4	33 1/2	2	2	F	12	12	3 1/4	4	4	4	4				32 1/4	
Concord E-1	4	4	1	1	H	7 1/2	1 1/4	9 1/2	1 1/4	33 1/2	2	2	F	12	12	3 1/4	4	4	4	4				32 1/4	
Concord G-2	4	4	1	1 1/4	H	7 1/2	1 1/4	9 1/2	1 1/4	33 1/2	2	2	F	13 1/4	13 1/4	3 1/4	4	4	4	4				32 1/4	
Concord H-2	4	4	1	1 1/4	H	7 1/2	1 1/4	9 1/2	1 1/4	33 1/2	2	2	F	13 1/4	13 1/4	3 1/4	4	4	4	4	103	59	196	68 1/2	
Concord J-2 1/2	4	4	1	1 1/4	H	7 1/2	1 1/4	9 1/2	1 1/4	33 1/2	2	2	F	13 1/4	13 1/4	3 1/4	4	4	4	4	104	62	206	68 1/2	
Concord JL-3	3	3	1	1	H	8	1 1/4	14	2	41	1 1/4	1 1/4	F	16 1/4	16 1/4	1 1/4	4	4	4	4	110	72	230	69	
Corbitt S-1 1/2	3	3	1	1	H	9	1 1/4	12	1 1/4	46	1 1/4	1 1/4	F	18	18	2 1/4	4	4	4	4	132	78	232	69	
Corbitt E-1	3	3	1	1	V	11	1 1/4	15	1 1/4	46	1 1/4	1 1/4	F	22 1/4	22 1/4	2 1/4	4	4	4	4	136	78	232	69	
Corbitt D-1 1/2	3	3	1	1 1/4	V	13	1 1/4	15	1 1/4	46	1 1/4	1 1/4	F	22 1/4	22 1/4	2 1/4	4	4	4	4	153	92	266	86 1/4	
Corbitt C-2	3	3	1	1 1/4	V	13	1 1/4	15	1 1/4	46	1 1/4	1 1/4	F	22 1/4	22 1/4	2 1/4	4	4	4	4	168	106	268	86 1/4	
Corbitt B-2 1/2	3	3	1	1 1/4	V	14	1 1/4	8	1 1/4	46	1 1/4	1 1/4	F	21	21	4	2	2	2	2					
Corbitt R-2 1/2-3	3	3	1	1 1/4	V	14	1 1/4	8	1 1/4	46	1 1/4	1 1/4	F	21	21	4	2	2	2	2					
Corbitt A-3 1/2-4	3	3	1	1 1/2	V	13	2	14	2	36	2	2	F	68 3/4	68 3/4	3	2	2	2	2					
Corbitt AA-5	3	3	1	1 1/2	V	13	2	14	2	36	2	2	F	68 3/4	68 3/4	3	2	2	2	2					
Day-Elder AN-1 1/2	3	3	1	1	V	6 3/4	1 1/4	7	1 1/4	34 1/4	1 1/4	1 1/4	F	10 1/4	10 1/4	3 1/4	4	4	4	4	106 3/4	62 3/4	191	35	
Day-Elder BN-2	3	3	1	1 1/4	V	4	1 1/4	12 1/2	1 1/4	41	1 1/4	1 1/4	F	13 1/4	13 1/4	3 1/4	4	4	4	4	118 3/4	78 3/4	202 3/4	35	
Day-Elder DN-2 1/2	3	3	1	1 1/4	V	4	1 1/4	12 1/2	1 1/4	41	1 1/4	1 1/4	F	13 1/4	13 1/4	3 1/4	4	4	4	4	122 1/2	72 3/4	216 1/2	35	
Day-Elder CN-3	3	3	1	1 1/4	V	10 1/4	1 1/4	12 1/2	1 1/4	37	2	2	F	15 1/4	15 1/4	3 1/4	4	4	4	4	123 1/4	77 1/4	214 1/4	35	
Day-Elder FN-4	3	3	1	1 1/4	V	7 1/2	1 1/4	12 1/2	1 1/4	38	2	2	F	17 1/4	17 1/4	3 1/4	4	4	4	4	120 1/4	81 1/4	253	37	
Day-Elder EN-5-6	3	3	1	1 1/4	V	12 1/2	2	8	2	40	1 1/4	1 1/4	F	20	20	2 1/4	4	4	4	4	154	94	179 1/2	34	
Defiance G2-1 1/2	3	3	1	1	H	10	2	8	2	40	1 1/4	1 1/4	F	20	20	2 1/4	4	4	4	4	119 1/2	76 1/2	203	34	
Defiance GL2-1 1/2	3	3	1	1	H	10	2	8	2	40	1 1/4	1 1/4	F	20	20	2 1/4	4	4	4	4	119 1/2	76 1/2	203	34	
Defiance D-2-1 1/2	3	3	1	1	H	10	2	8	2	40	1 1/4	1 1/4	F	20	20	2 1/4	4	4	4	4	119 1/2	76 1/2	203	34	
Defiance E2-2	3	3	1	1	H	10	2	8	2	40	1 1/4	1 1/4	F	20	20	2 1/4	4	4	4	4	136 1/2	93 1/2	220	34	
Defiance EL-2-2	3	3	1	1 1/4	V	11 1/4	1 1/4	9	1 1/4	42 1/2	1 1/4	1 1/4	F	61	61	2 1/4	4	4	4	4	125 1/2	82 1/2	220	34	
Defiance H2-3	3	3	1	1 1/4	V	11 1/4	1 1/4	9	1 1/4	42 1/2	1 1/4	1 1/4	F	61	61	2 1/4	4	4	4	4	143 1/2	100 1/2	238	34	
Defiance HL-2-3	3	3	1	1 1/4	V	11 1/4	1 1/4	9	1 1/4	42 1/2	1 1/4	1 1/4	F	61	61	2 1/4	4	4	4	4	101 1/4	66 1/4	190	34	
Defiance H-3	3	3	1	1	V	14	2	15	1 1/4	37 1/2	2	2	F	53 1/4	53 1/4	2 1/4	4	4	4	4	108			33 1/4	
Dependable Dispatch A-1 1/2	4	4	1	1	V	14	2	15	1 1/4	37 1/2	2	2	F	53 1/4	53 1/4	2 1/4	4	4	4	4	121	77	215	333	



## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING						FRAME								
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service			Emergency			Length		Width						
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Lowest Point of Chassis
Garford 150-A-7½	4	3	1½	1½	V	13½	12	12	12	39¼	1	R	10½	4	3	2	21½	4	3	4	150	88½	251	36	11
Gary F-1-1½	4	3	1	1	V	13½	12	12	12	32	1	F	11½	3	3	4	11½	3	3	4	97½	72	214	34	11½
Gary I-2	4	4	1½	1½	V	10	12	12	12	36	2	F	12	3	3	4	12	3	3	4	120	76	214	34	10
Gary J-2½	4	4	1½	1½	V	13	16½	16½	16½	36	2	F	15½	3	3	4	15½	3	3	4	148	86	247	36½	10½
Gary K-3½	4	4	1½	1½	V	14	18	18	18	36	2	F	18½	4	4	4	18½	4	4	4	168	99	275	39	10½
Gary M-5	4	4	1½	1½	V	8½	8	8	8	33½	1	R	49	2	2	1	47	2	2	1	89	57	183½	34	8½
G.M.C. K-16	4	4	1½	1½	V	10	13½	13½	13½	35½	1	R	13	3	3	2	13	3	3	2	Opt	Opt	Opt	33	9½
G.M.C. K-41	4	4	1½	1½	V	11½	13½	13½	13½	35½	1	R	15½	3	3	2	15½	3	3	2	Opt	Opt	Opt	38	10½
G.M.C. K-71	4	4	1½	1½	V	11½	13½	13½	13½	35½	1	R	17½	4	4	2	17½	4	4	2	Opt	Opt	Opt	38	9½
G.M.C. K-101	4	4	1½	1½	V	9½	10½	10½	10½	32½	1	R	11½	2	2	2	11½	2	2	2	Opt	Opt	Opt	32	11½
Gottfredson 20-1	4	4	1	1	V	11	16½	16½	16½	41	1	F	13½	3	3	4	13½	3	3	4	120	88	214½	32½	12
Gottfredson 40-1½-2	4	4	1½	1½	V	14	18	18	18	43	1	F	15½	3	3	4	15½	3	3	4	127	81	222	33	9½
Gottfredson 50-2½	4	4	1½	1½	V	14	18	18	18	43	1	F	15½	3	3	4	15½	3	3	4	157	89½	247½	35	9½
Gottfredson 80-4	4	4	1½	1½	V	14	19	19	19	42½	1	F	18	4	4	4	18	4	4	4	155½	89½	261½	38	9½
Gottfredson 100-5	4	4	1½	1½	V	9	17½	17½	17½	34½	1	F	50	2½	2½	2	20	1½	1½	2	98	58	194½	33½	10½
Graham Bros.	3	3	1	1	V	12	14	14	14	29	1	F	48	2	2	2	26	2	2	2	120	74	205½	32	10
Gramm-Pioneer 10 Speed-1	3	3	1	1	V	10½	12	12	12	39	1	F	48	2	2	2	45½	1½	1½	2	120	74	205½	32	10
Gramm-Pioneer 15-1½-2	3	3	1	1	V	10½	12	12	12	39	1	F	19½	1½	1½	4	19½	1½	1½	4	120	74	205½	32	10
Gramm-Pioneer 65-1½-2	3	3	1	1	V	10½	12	12	12	39	1	F	8	5	5	2	45	2	2	2	126	77½	214	32	10
Gramm-Pioneer 125-2½	3	3	1	1	V	11	11½	9	11½	33½	2	F	22½	2½	2½	4	22½	2½	2½	4	129½	81½	226½	36	10
Gramm-Pioneer 30-3	3	3	1	1	V	11	11½	9	11½	33½	2	F	22½	2½	2½	4	22½	2½	2½	4	129½	81½	226½	36	10
Gramm-Pioneer 75P-3½	3	3	1	1	V	11	11½	9	11½	33½	2	F	28	2½	2½	4	28	2½	2½	4	144	87½	240½	36	10
Gramm-Pioneer 40-4	3	3	1	1	V	11	11½	9	11½	33½	2	F	32	2½	2½	4	32	2½	2½	4	132	97	263½	36	10
Gramm-Pioneer 50-5-6	3	3	1	1	V	23½	13	13	13	40	2	F	48	2	2	2	48	2	2	2	98	70	192	31	10
Grass Premier 40A	4	4	1½	1½	V	12	14	14	14	29	1	F	48	2	2	2	47	1½	1½	2	108	66	204	31	10
Grass Premier 60A1½	4	4	1½	1½	V	14	16	16	16	29	1	F	48	2	2	2	47	1½	1½	2	120	95	214	31	10
Grass Premier 70A2½	4	4	1½	1½	V	14	16	16	16	29	1	F	48	2	2	2	47	1½	1½	2	120	95	214	31	10
Grass Premier 90A3½	3	3	1	1	V	11	11½	9	11½	34½	1	F	27	1½	1½	4	19½	1½	1½	4	95	83	192	35	9
Gray N-1½	3	3	1	1	H	9	2½	2½	2½	34½	1	F	20	2	2	2	19½	1½	1½	2	112½	152½	32	9	9
Gray T-1	3	3	1	1	H	9	2½	2½	2½	34½	1	F	20	2	2	2	19½	1½	1½	2	112½	152½	32	9	9
G. W. W. Super	3	3	1½	1½	H	8	17½	17½	17½	37½	1½	F	49	2½	2½	2	47	1½	1½	2	89	72	192	32	11½
Harvey WOA-2	4	4	1½	1½	V	11	14	14	14	35½	2	F	45	2	2	2	45	2	2	2	139	87	242½	32	10
Harvey WFB-2½	4	4	1½	1½	V	11	14	14	14	35½	2	F	50	2	2	2	50	2	2	2	139	87	242½	32	10
Harvey WHB-3½	4	4	1½	1½	V	11	14	14	14	36½	2	F	20½	4	4	4	20½	3	3	4	151½	85½	258½	35	9
Harvey WHT-6	4	4	1½	1½	V	11	14	14	14	36½	2	F	50	2	2	2	50	2	2	2	84	52	189	32	10
Harvey WHT-10	4	4	1½	1½	V	12	14	14	14	36½	2	F	20½	4	4	4	20½	3	3	4	86	52½	191½	35	9
Hawkeye O	4	4	1	1	V	12	2	9	1	1	1	F	4	1	1	1	4	1	1	1	Opt	Opt	Opt	34	10
Hawkeye K	4	4	1	1	V	12	2	9	1	1	1	F	4	1	1	1	4	1	1	1	Opt	Opt	Opt	34	10
Hawkeye M	4	4	1	1	V	12	2	9	1	1	1	F	4	1	1	1	4	1	1	1	Opt	Opt	Opt	34	10
Hawkeye N	4	4	1	1	V	14	2½	9	1	1	1	F	4	1	1	1	4	1	1	1	Opt	Opt	Opt	34	10
Hug T	4	4	1	1	V	12	13	13	13	1	1	F	48	2½	2½	2	22	2	2	2	Opt	Opt	Opt	35½	12
Hurlburt A1½-2	3	3	1	1	V	11	11	11	11	1	1	F	22	2	2	2	22	2	2	2	132	154	34	35½	12
Hurlburt B2½	3	3	1	1	V	11	11	11	11	1	1	F	24	2½	2½	2	23	2½	2½	2	154	144½	34	34	12
Hurlburt C3½-4	3	3	1	1	V	11	11	11	11	1	1	F	26	3	3	2	25	3	3	2	144½	144½	34	34	12
Hurlburt D5-5½	3	3	1	1	V	11	11	11	11	1	1	F	28	3	3	2	27	3	3	2	144½	144½	34	34	12
Indiana 12-1½	3	3	1½	1½	V	17	14	14	14	38½	1	F	19	2	2	4	19	2	2	4	120	76	207½	32	10½
Indiana 20-2	3	3	1½	1½	V	6	13	13	13	26½	1	F	22½	2½	2½	4	22½	2½	2½	4	126	74½	217½	33	10½
Indiana 25-2½	3	3	1½	1½	V	6	13	13	13	26½	1	F	22½	2½	2½	4	22½	2½	2½	4	138	81	229	33	9½
Indiana 35-3½	3	3	1½	1½	V	6	13	13	13	26½	1	F	20½	2	2	4	20½	2	2	4	144	84½	235½	34½	8½
Indiana 51-5	3	3	1½	1½	V	10	17½	17½	17½	40½	1	F	65	2	2	2	65	2	2	2	156½	91	253	37½	10½
Inter'l S-2000 lbs.-Sp. Tr.	3	3	1½	1½	V	9½	17½	17½	17½	30½	1	F	38	2	2	2	36	2	2	2	88	76	207½	34	10½
International 21-2000 lbs.	3	3	1½	1½	V	6	13	13	13	38½	1	F	43½	2½	2½	2	43½	2½	2½	2	106½	111	234	34	10½
International 31-3000 lbs.	3	3	1½	1½	V	6	13	13	13	38½	1	F	43½	2½	2½	2	43½	2½	2½						

## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING				FRAME			
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service		Emergency		Length		Width	
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat
Krebs L-75	4	4	1 1/4	1 1/4	V	11	11	17	17	1 1/2	44	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	131
Krebs L-110	4	4	1 1/4	1 1/4	V	11	11	17	17	1 1/2	44	16	3 1/2	16	3 1/2	1 1/2	4	131
Krebs B-120	4	4	1 1/4	1 1/4	V	11	11	17	17	1 1/2	44	16	3 1/2	16	3 1/2	1 1/2	4	125 1/2
Lange F.	4	4	1 1/4	1 1/4	V	5	5	15 1/2	15 1/2	1 1/2	42	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	139
Lange E-2 1/2	4	4	1 1/4	1 1/4	V	6 1/2	6 1/2	15 1/2	15 1/2	1 1/2	42	50	3 1/2	50	3 1/2	1 1/2	4	139
Larrabee X2-1 1/4 Ton.	4	4	1 1/4	1 1/4	V	6 1/2	6 1/2	15 1/2	15 1/2	1 1/2	42	19	2 1/2	21	2 1/2	1 1/2	4	108
Larrabee J4-1 1/4-2 1/4 Ton.	4	4	1 1/4	1 1/4	V	6 1/2	6 1/2	15 1/2	15 1/2	1 1/2	42	21	2 1/2	21	2 1/2	1 1/2	4	Opt
Larrabee K5-2 1/4-3 1/4 Ton.	4	4	1 1/4	1 1/4	V	6 1/2	6 1/2	15 1/2	15 1/2	1 1/2	42	21	2 1/2	21	2 1/2	1 1/2	4	Opt
Larrabee L4-3 1/4-4 1/4 Ton.	4	4	1 1/4	1 1/4	V	8 1/2	8 1/2	17 1/2	17 1/2	2	44 1/2	72	3	72	3	1 1/2	2	152
Larrabee W-5-7	4	4	1 1/4	1 1/4	V	8 1/2	8 1/2	17 1/2	17 1/2	2	44 1/2	72	3	72	3	1 1/2	2	152
Maccor EX.	3	4	1 1/4	1 1/4	V	4 1/2	4 1/2	15	15	1 1/2	35 1/2	50	2 1/2	48	2 1/2	1 1/2	2	101 1/2
Maccor L-1, 1 1/2	4	4	1 1/4	1 1/4	V	4	4	15	15	1 1/2	35 1/2	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	125 1/2
Maccor H-1, 3	4	4	1 1/4	1 1/4	V	4	4	15	15	1 1/2	35 1/2	14	3 1/2	14	3 1/2	1 1/2	4	139 1/2
Maccor M-2, 4	4	4	1 1/4	1 1/4	V	4	4	15	15	1 1/2	35 1/2	14	3 1/2	14	3 1/2	1 1/2	4	153 1/2
Maccor G-1, 5	4	4	1 1/4	1 1/4	V	4	4	15	15	1 1/2	35 1/2	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	163 1/2
Maccor HT.	4	4	1 1/4	1 1/4	V	4	4	15	15	1 1/2	35 1/2	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	139 1/2
Mack AB-1 1/4, 2, 2 1/2-T-Ch	3	3	1 1/4	1 1/4	V	7 1/2	7 1/2	15 1/2	15 1/2	1 1/2	36 1/2	18 1/2	3 1/2	20	3 1/2	1 1/2	4	Opt
Mack Dual R'd'n-1 1/2, 2 1/2	3	3	1 1/4	1 1/4	V	7 1/2	7 1/2	15 1/2	15 1/2	1 1/2	36 1/2	18 1/2	3 1/2	20	3 1/2	1 1/2	4	Opt
Mack AB-Tractor-5	3	3	1 1/4	1 1/4	V	5	5	15	15	1 1/2	36 1/2	16 1/2	3 1/2	20	3 1/2	1 1/2	4	87
Mack AC-3 1/2, 5, 6 1/2, 7 1/2	3	3	1 1/4	1 1/4	V	5	5	15	15	1 1/2	36 1/2	16 1/2	3 1/2	20	3 1/2	1 1/2	4	85
Mack AC-Trac-7, 10, 13, 15	3	3	1 1/4	1 1/4	V	11 1/2	11 1/2	14 1/2	14 1/2	1 1/2	30 1/2	42	2 1/2	42	2 1/2	1 1/2	2	Opt
Mason Road King	4	4	1 1/4	1 1/4	V	13 1/2	13 1/2	22	22	2	31	13 1/2	3 1/2	16	3 1/2	1 1/2	2	177 1/2
Master 22-1 1/2	4	4	1 1/4	1 1/4	V	13 1/2	13 1/2	22	22	2	31	13 1/2	3 1/2	16	3 1/2	1 1/2	2	147 1/2
Master 41-2 1/2	4	4	1 1/4	1 1/4	V	13 1/2	13 1/2	22	22	2	31	13 1/2	3 1/2	16	3 1/2	1 1/2	2	162 1/2
Master 51-3 1/2	4	4	1 1/4	1 1/4	V	13 1/2	13 1/2	22	22	2	31	13 1/2	3 1/2	16	3 1/2	1 1/2	2	162 1/2
Master 61-5	4	4	1 1/4	1 1/4	V	13 1/2	13 1/2	22	22	2	31	13 1/2	3 1/2	16	3 1/2	1 1/2	2	102
Master 64-5-6	4	4	1 1/4	1 1/4	V	7 1/2	7 1/2	2 1/2	2 1/2	3 1/2	36 1/2	31	1 1/2	11	2 1/2	1 1/2	4	102 1/2
Maxwell 1 1/2	3	3	1 1/4	1 1/4	V	6	6	1 1/2	1 1/2	1 1/2	40	13 1/2	3 1/2	8	3 1/2	1 1/2	2	122
Menominee Hurryton-1	3	3	1 1/4	1 1/4	V	3	3	1 1/2	1 1/2	1 1/2	37 1/2	13 1/2	3 1/2	42 1/2	3 1/2	1 1/2	2	146
Menominee H-1 1/2	3	3	1 1/4	1 1/4	V	3	3	1 1/2	1 1/2	1 1/2	37 1/2	13 1/2	3 1/2	42 1/2	3 1/2	1 1/2	2	102 1/2
Menominee D-2	3	3	1 1/4	1 1/4	V	3	3	1 1/2	1 1/2	1 1/2	37 1/2	13 1/2	3 1/2	42 1/2	3 1/2	1 1/2	2	149
Menominee HT-1 1/2	3	3	1 1/4	1 1/4	V	3	3	1 1/2	1 1/2	1 1/2	37 1/2	13 1/2	3 1/2	42 1/2	3 1/2	1 1/2	2	108
Menominee J-3, 5	3	3	1 1/4	1 1/4	V	3	3	1 1/2	1 1/2	1 1/2	37 1/2	13 1/2	3 1/2	42 1/2	3 1/2	1 1/2	2	108
Menominee G-3 1/2	3	3	1 1/4	1 1/4	V	8	8	1 1/2	1 1/2	1 1/2	34	12	3 1/2	12	3 1/2	1 1/2	4	132
Moreland RR-1	3	3	1 1/4	1 1/4	V	8	8	1 1/2	1 1/2	1 1/2	34	12	3 1/2	12	3 1/2	1 1/2	4	174
Moreland BX-1 1/2	3	3	1 1/4	1 1/4	V	9	9	1 1/2	1 1/2	1 1/2	42	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	192
Moreland EX-2	3	3	1 1/4	1 1/4	V	9	9	1 1/2	1 1/2	1 1/2	42	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	156
Moreland AX-3	4	4	1 1/4	1 1/4	V	8	8	1 1/2	1 1/2	1 1/2	34	13 1/2	3 1/2	46	3 1/2	1 1/2	4	152
Moreland RX-5	3	3	1 1/4	1 1/4	V	8	8	1 1/2	1 1/2	1 1/2	34	13 1/2	3 1/2	46	3 1/2	1 1/2	4	171
Moreland RC-Bus	3	3	1 1/4	1 1/4	V	9	9	1 1/2	1 1/2	1 1/2	42	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	152
Moreland EC-Bus	3	3	1 1/4	1 1/4	V	9	9	1 1/2	1 1/2	1 1/2	42	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	171
Moreland AC-Bus	3	3	1 1/4	1 1/4	V	9	9	1 1/2	1 1/2	1 1/2	42	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	4	171
Nash 2018-1-1 1/2	4	4	1 1/4	1 1/4	V	3	3	1 1/2	1 1/2	1 1/2	36	49 1/2	2 1/2	20	2 1/2	1 1/2	1	104 1/2
Nash 3018-2-2 1/2	4	4	1 1/4	1 1/4	V	7	7	1 1/2	1 1/2	1 1/2	44	50 1/2	2 1/2	20	2 1/2	1 1/2	1	118 1/2
Nash 4017-2-2 1/2	4	4	1 1/4	1 1/4	V	7	7	1 1/2	1 1/2	1 1/2	44	50 1/2	2 1/2	20	2 1/2	1 1/2	1	118 1/2
National FA-1	3	3	1 1/4	1 1/4	V	17	17	1 1/2	1 1/2	1 1/2	42	12	3 1/2	12	3 1/2	1 1/2	4	97 1/2
National GA-1 1/2	3	3	1 1/4	1 1/4	V	17	17	1 1/2	1 1/2	1 1/2	42	12	3 1/2	12	3 1/2	1 1/2	4	111 1/2
National HD-2 1/2	3	3	1 1/4	1 1/4	V	12	12	1 1/2	1 1/2	1 1/2	46	16	3 1/2	16	3 1/2	1 1/2	4	123 1/2
National NB-3 1/2	3	3	1 1/4	1 1/4	V	12	12	1 1/2	1 1/2	1 1/2	46	16	3 1/2	16	3 1/2	1 1/2	4	137 1/2
National OA-5	3	3	1 1/4	1 1/4	V	12	12	1 1/2	1 1/2	1 1/2	46	16	3 1/2	16	3 1/2	1 1/2	4	65
Nelson & LeMoon G-1	4	4	1 1/4	1 1/4	V	8	8	1 1/2	1 1/2	1 1/2	39 1/2	11 1/2	3 1/2	11 1/2	3 1/2	1 1/2	2	Opt
Nelson & LeMoon G-1 1/2	4	4	1 1/4	1 1/4	V	8	8	1 1/2	1 1/2	1 1/2	39 1/2	11 1/2	3 1/2	11 1/2	3 1/2	1 1/2	2	Opt
Nelson & LeMoon G-2	4	4	1 1/4	1 1/4	V	9	9	1 1/2	1 1/2	1 1/2	41 1/2	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	2	Opt
Nelson & LeMoon G-3	4	4	1 1/4	1 1/4	V	9	9	1 1/2	1 1/2	1 1/2	41 1/2	13 1/2	3 1/2	13 1/2	3 1/2	1 1/2	2	Opt
Nelson & LeMoon G-4	4	4	1 1/4	1 1/4	V	12	12	1 1/2	1 1/2	1 1/2	40 1/2	16 1/2	3 1/2	16 1/2	3 1/2	1 1/2	2	142
Nelson & LeMoon G-5	4	4	1 1/4	1 1/4	V	12	12	1 1/2	1 1/2	1 1/2	40 1/2	16 1/2	3 1/2	16 1/2	3 1/2	1 1/2	2	139 1/2
Netco DK-2	3	3	1 1/4	1 1/4	V	13	13	1 1/2	1 1/2	1 1/2	41 1/2	13 1/2	3 1/2	45	3 1/2	1 1/2	2	100
Netco HL-2 1/2-3	3	3	1 1/4	1 1/4	V	10	10	1 1/2	1 1/2	1 1/2	33 1/2	19	2 1/2	19	2 1/2	1 1/2	2	102
Noble A-75	4	4	1 1/4	1 1/4	V	10	10	1 1/2	1 1/2	1 1/2	33 1/2	43	2 1/2	43	2 1/2	1 1/2	2	126
Noble A-21-1 1/2	4	4	1 1/4	1 1/4	V	7	7	1 1/2	1 1/2	1 1/2	34 1/2	21	2 1/2	21	2 1/2	1 1/2	4	101
Noble B-31-2	4	4	1 1/4	1 1/4	V	9	9	1 1/2	1 1/2	1 1/2	34 1/2	21	2 1/2	21	2 1/2	1 1/2	4	114
Noble D-51-2 1/2	4	4	1 1/4	1 1/4	V	14 1/2	14 1/2	2 1/2	2 1/2	2 1/2	46 1/2	57	2 1/2	57	2 1/2	1 1/2	2	133
Noble E-71-3 1/2	4	4	1 1/4	1 1/4	V	14 1/2	14 1/2	2 1/2	2 1/2	2 1/2	46 1/2	57	2 1/2	57	2 1/2	1 1/2	2	173
Northway B-2-2	3	3	1 1/4	1 1/4	V	5 1/2	5 1/2	2 1/2	2 1/2	2 1/2	13 1/2	50 1/2	2 1/2	50 1/2	2 1/2	1 1/2	2	108
Northway B-3-3 1/2	3	3	1 1/4	1 1/4	V	5 1/2	5 1/2	2 1/2	2 1/2	2 1/2	13 1/2	54	2 1/2	54	2 1/2	1 1/2	2	120
Ogden A-2-1	3	3	1 1/4	1 1/4	V	1	1	12	12	6	44	11	2 1/2	11	2 1/2	1 1/2	4	144
Ogden D-1 1/2	3	3	1 1/4	1 1/4	V	1	1	12	12	6	44	11	2 1/2	11	2 1/2	1 1/2	4	168
Ogden E-2 1/2	3	3	1 1/4	1 1/4	V	1	1	12	12	6	44	11	2 1/2	11	2 1/2	1 1/2	4	



## Replacement Table—Continued

NAME, MODEL AND TONNAGE		ENGINE										BRAKE LINING				FRAME									
		Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service		Emergency		Length		Width							
		No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All
Perfection A.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	95 1/2	67 1/2	175	32	10 1/2
Perfection B.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	104 1/2	76 1/2	184	32	10 1/2
Perfection C.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	117 1/2	78 1/2	217	34	10 1/2
Perfection D.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	103 1/2	84 1/2	203	34	9 1/2
Perfection E.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	116 1/2	80 1/2	205	38	12 1/2
Perfection EA.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	110 1/2	80 1/2	205	38	12 1/2
Pierce Arrow KA-2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	125 1/2	70 1/2	225	34 1/2	8 1/2
Pierce Arrow KB-3.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	125 1/2	70 1/2	225	34 1/2	8 1/2
Pierce Arrow WC-4.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	133 1/2	78 1/2	237	38 1/2	7 1/2
Pierce Arrow WD-5.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pierce Arrow RE-6.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pierce Arrow RF-7 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pierce Arrow XB-TT.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pierce Arrow WD-TT.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pierce Arrow RF-TT.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	139 1/2	84 1/2	243	38 1/2	8 1/2
Pioneer 59AA-1.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	102	74	210	.....	.....
Pittsburgher A 1 1/2-2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	126	84	220	.....	.....
Pittsburgher C 2 1/2-3.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	136	84	220	.....	.....
Pittsburgher D 3 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	136	84	220	.....	.....
Power F-2 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	143	.....	.....	32	12
Power C 3 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	143	.....	.....	36	12
Rainier R31-1/4.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	86 1/2	50 1/2	181	34	11 1/4
Rainier R29-1.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	96 1/2	57 1/2	206 1/2	34	9 1/4
Rainier R36-1 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	111	72 1/2	206 1/2	34	9 1/4
Rainier R28-2 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	124 1/2	80 1/2	241 1/2	33	10
Rainier R20-2 1/2-3.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	137 1/2	85 1/2	263 1/2	37	8 1/4
Rainier R25-3 1/2-5.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	157 1/2	91	263 1/2	30	9 1/4
Rainier R27-6.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	154 1/2	88	263 1/2	37	10 1/4
Reo F-2500 lbs.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	81 1/2	55 1/2	171	33	.....
Reynolds 23A-2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	136	.....	.....	53 1/2	.....
Reynolds 23B-3.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	156	.....	.....	33	.....
Reynolds 23C-25-pas. Bus.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	220	70	202 1/2	33	10 1/4
Rowe CDW-2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	123	103 1/2	224	33	9 1/4
Rowe CDW-2 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	140	96 1/2	224	33	9
Rowe GSW-3.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	146	96 1/2	230 1/2	36	9
Rowe HW-4.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	153	107 1/2	237 1/2	38 1/2	10 1/4
Rowe FW-5.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	128	97 1/2	170	38 1/2	9 1/4
Ruggles 15-1/4.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	96 1/2	55 1/2	186 1/2	34	11
Ruggles 20R-1 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	104 1/2	75 1/2	194 1/2	34	11
Ruggles 20AR-1 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	134 1/2	75 1/2	224	34	8 1/4
Ruggles 40-2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1/2	2 1/2	1 1/4	4	134 1/2	75 1/2	224	34	9 1/4
Ruggles 40H-2 1/2.....	3	3	1 1/4	1 1/4	V	9	9	2	6	43 3/4	3 1/2	V	10 1/2	2 1/2	1 1/4	4	10 1								

## Replacement Table—Continued

NAME, MODEL AND TONNAGE	ENGINE										BRAKE LINING							FRAME							
	Piston Rings		Carburetor		Upper Hose		Lower Hose		Fan Belt		Service				Emergency			Length			Width				
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Driver's Seat to Center of Rear Axle	Over All	Over All	Clearance at Front of Chassis
Super Truck 50.....	3	1 1/4	1 1/4	1 1/4	V	18 1/2	1 1/4	19	1 1/4	37 1/2	1 1/4	F	51 1/2	2 1/2	1/4	2	51 1/2	1 1/4	1/4	2	135	84	243	36	9 1/2
Super Truck 70.....	3	1 1/4	1 1/4	1 1/4	V	18 1/2	1 1/4	19	1 1/4	37 1/2	1 1/4	F	55 1/2	2 1/2	1/4	2	55 1/2	1 1/4	1/4	2	144	97 1/2	249	34	10 1/2
Super Truck 100.....	3	1 1/4	1 1/4	1 1/4	V	6	1 1/4	19	1 1/4	42	1 1/4	F	68	3	1/4	2	51 1/2	3	1/4	2	144	97 1/2	249	34	10
Traffic C-4000.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	10 1/2	2	41 1/4	1 1/4	F	43 1/2	2 1/2	1/4	2	38	1 1/4	1/4	2	120 1/2	67 1/2	213 1/2	42	10 1/2
Traffic 6000.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	10 1/2	2	41 1/4	1 1/4	F	52	2 1/2	1/4	2	47	2 1/2	1/4	2	120 1/2	69 1/2	213 1/2	34	11 1/2
Traffic Speedboy.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	10 1/2	2	41 1/4	1 1/4	F	43 1/2	2 1/2	1/4	2	38	1 1/4	1/4	2	86	53 1/2	174	34	11 1/2
Transport 15-1.....	3	1 1/4	1 1/4	1 1/4	H	10 1/2	2	13	2	40 1/2	1 1/4	F	48	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	98 1/2	57 1/2	188	34	10 1/2
Transport 26-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9 1/4	2	13	1 1/4	34 1/2	1 1/4	F	48 1/2	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	113 1/2	70 1/4	201	34	10
Transport 36-2.....	4	1 1/4	1 1/4	1 1/4	V	10 3/4	2	16	1 1/4	33 1/2	1 1/4	F	10 3/4	3 1/2	1/4	2	46 1/2	1 1/2	1/4	2	120 1/2	72 3/4	210	34	11
Transport 61-3 1/2.....	4	1 1/4	1 1/4	1 1/4	V	9 1/4	2	16	1 1/4	33 1/2	1 1/4	F	11 1/2	3	1/4	4	48 1/2	2 1/2	1/4	2	127 1/2	75 1/2	218	34	10 1/2
Transport 75-5.....	4	1 1/4	1 1/4	1 1/4	V	12	2	16	1 1/4	35 1/2	1 1/4	F	11 1/2	3	1/4	4	58	2 1/2	1/4	2	150 3/4	93 1/2	251 1/2	36 1/2	10 1/2
Traylor B.....	4	1 1/4	1 1/4	1 1/4	V	10	2	6	1 1/4	38	1 1/4	F	50	2	1/4	2	50	2	1/4	2	117	75	204 1/2	34	10
Traylor C.....	4	1 1/4	1 1/4	1 1/4	V	12	2	12	1 1/4	36	2	F	50	2	1/4	2	50	2	1/4	2	122	73 1/2	218 1/2	34	10 1/2
Traylor D.....	4	1 1/4	1 1/4	1 1/4	V	12	2	12	1 1/4	36	2	F	56 1/2	2 1/2	1/4	2	56 1/2	2 1/2	1/4	2	142	76	241 1/2	34	10 1/2
Traylor F.....	4	1 1/4	1 1/4	1 1/4	V	14	2	14	1 1/4	37	2	F	59	2 1/2	1/4	2	59	2 1/2	1/4	2	165	92 1/2	273 1/2	35	11
Triangle AA-1.....	3	1 1/4	1 1/4	1 1/4	H	17	2	17	2	34	1 1/4	F	22 1/2	1 1/4	1/4	4	48	2 1/2	1/4	2	94	53	177	35	10
Triangle A-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	14	1 1/4	14 1/2	1 1/4	39 1/2	1 1/4	F	71 1/2	4	1/4	2	49	2 1/2	1/4	2	126	77 1/2	225	34	12
Triangle B 2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	18	1 1/4	39 1/2	1 1/4	F	71 1/2	4	1/4	2	52	3	1/4	2	132	84 1/2	217 1/2	34	9
Triangle C-2.....	3	1 1/4	1 1/4	1 1/4	V	14	1 1/4	14 1/2	1 1/4	39 1/2	1 1/4	F	71 1/2	4	1/4	2	52	3	1/4	2	129	81	219 1/2	34	12
Ultimate A-2.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	126	.....	.....	32 1/2	.....
Ultimate AJ2.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	126	.....	.....	32 1/2	.....
Ultimate AJL-2.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	150	.....	.....	32 1/2	.....
Ultimate AJXL.....	4	1 1/4	1 1/4	1 1/4	V	12	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	144	.....	.....	32 1/2	.....
Ultimate B-3.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	192	.....	.....	32 1/2	.....
Ultimate BL3.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	17	4 1/2	1/4	2	17	4 1/2	1/4	2	180	.....	.....	37 1/2	.....
Ultimate D-5.....	4	1 1/4	1 1/4	1 1/4	V	11	2	8	1 1/4	34	2	F	51	2 1/2	1/4	2	51	2 1/2	1/4	2	192	.....	.....	32 1/2	.....
Union FW-2 1/2.....	3	1 1/4	1 1/4	1 1/4	V	20	1 1/4	19 1/2	1 1/4	37 1/2	2	F	26	4 1/2	1/4	1	52	3	1/4	1	133 1/2	77 1/2	224	32	11 1/2
Union H-4.....	3	1 1/4	1 1/4	1 1/4	V	20	1 1/4	19 1/2	1 1/4	37 1/2	2	F	56 1/2	3 1/2	1/4	1	32	4 1/2	1/4	1	157 1/2	98	264	34	13 1/2
Union HW-4.....	3	1 1/4	1 1/4	1 1/4	V	20	1 1/4	19 1/2	1 1/4	37 1/2	2	F	26	4 1/2	1/4	1	24	4	1/4	2	157 1/2	98	264	34	13 1/2
United Highway Spec.....	3	1 1/4	1 1/4	1 1/4	V	14	2	19	2	34 1/2	1 1/4	F	48	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	92	53 1/2	182	33	9 1/2
United 30.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 1/2	1 1/4	F	47	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	115 1/2	75 1/2	206	33	10 1/2
United 35.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 1/2	1 1/4	F	48 1/2	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	115 1/2	75 1/2	206	33	9
United 50.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 1/2	1 1/4	F	47 1/2	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	132 1/2	80 1/2	226	33	8 1/2
United 60.....	3	1 1/4	1 1/4	1 1/4	V	10	2	13 1/2	2	32 1/2	1 1/4	F	50 1/2	2 1/2	1/4	2	46 1/2	2 1/2	1/4	2	132 1/2	80 1/2	226	33	8 1/2
United 80.....	4	1 1/4	1 1/4	1 1/4	V	8 1/2	2	13 1/2	1 1/2	42	2	F	57 1/2	2 1/2	1/4	2	42 1/2	2 1/2	1/4	2	141 1/2	81 1/2	237 1/2	34	9 1/2
U.S.U.-1 1/4.....	4	1 1/4	1 1/4	1 1/4	V	11 1/2	2	11 1/2	1 1/4	37	1 1/4	F	50 1/2	2 1/2	1/4	2	20	1 1/2	1/4	4	108	70	195	32	9 1/2
U.S.N.-1 1/2.....	4	1 1/4	1 1/4	1 1/4	H	11 1/2	2	9	1 1/4	37	1 1/4	F	50 1/2	2 1/2	1/4	2	46 1/2	1 1/2	1/4	4	120	82	211	34	11
U.S.N.W.-23 1 1/2-2.....	4	1 1/4	1 1/4	1 1/4	H	11 1/2	2	11 1/2	1 1/4	37	1 1/4	F	50 1/2	2 1/2	1/4	2	46 1/2	1 1/2	1/4	4	120	82	211	34	11
U.S.R.-2 1/2-3.....	3	1 1/4	1 1/4	1 1/4	V	10	1 1/4	10 1/2	1 1/4	35	1 1/4	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	144	94	241	34	9 1/2
U.S.S.-3 1/2-4.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	8	1 1/4	37	1 1/4	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	156	104	258	36	9
U.S.T. 5-7.....	4	1 1/4	1 1/4	1 1/4	V	15	2	13	1 1/2	38 1/2	1 1/2	F	62	3	1/4	4	33	3	1/4	4	168	103	278	36	10 1/2
U.S.S. Spec. 4-5.....	3	1 1/4	1 1/4	1 1/4	V	9	1 1/4	8	1 1/2	37	1 1/2	F	21	4	1/4	4	21	3	1/4	4	156	.....	.....	36	.....
Wachusett S-1.....	3	1 1/4	1 1/4	1 1/4	V	9 1/2	1 1/4	11	1 1/4	31 1/2	1 1/4	.....	11 1/4	2 1/2	1/4	2	11 1/4	2 1/2	1/4	2	212	115	74	33	.....
Wachusett J-1 1/2.....	4	1 1/4	1 1/4	1 1/4	V	10	1 1/4	10 1/2	1 1/2	36	1 1/2	.....	11	3	1/4	2	11	3	1/4	2	212	121	76		



# KEY OF ABBREVIATIONS

Note: Numerals on This Page Correspond With Numerals at Head of Specification Columns on Page Following. In All Specifications—O, Own; Op or Opt, Optional

## Engine:

- 1 Buda  
Cont—Continental  
GBS—Golden, Belknap &  
Her—Hercules [Swartz]  
Hin—Hinkley  
H-Sp—Herschell-Spillman  
Lyc—Lycoming  
Mid—Midwest  
Wau—Waukesha  
Wei—Weidely  
Wis—Wisconsin

## Valve Arrangement:

- 2 D—Head & Side  
H—Overhead  
L—ELL-Head  
S—Sleeve  
T—TEE-Head

## Radiator (Make):

- 3 Bre—Bremer  
Brm—Brenem  
Bus—Bush  
Can—Candler  
Cor—Corcoran  
Chic—Chicago  
EM—English-Mersick  
Fed—Feddars  
Flex—Flexo  
GO—G. & O.  
Har—Harrison  
Hoo—Hooven  
Idl—Ideal  
Liv—Livingston  
Lng—Long  
McC—McCord  
McK—McKinnon Dash  
May—Mayo  
Mod—Modine  
Per—Perfex  
R-T—Rome-Turney  
SJ—Shotwell Johnson  
Spar—Sparton  
Spec—Special  
Spli—Splitex  
Stn—Standard  
U. S.—U. S. Cartridge  
Whe—Wheeler

## Lubrication:

- 4 FS—Force and Splash  
F—Force Feed  
S—Splash

## Carburetor:

- 5 Cart—Carter  
Ens—Ensign  
Hol—Holly  
John—Johnson  
Mar—Marvel  
Rayf—Rayfield  
Scoe—Scoe  
Strm—Stromberg  
Sheb—Schebler  
Stew—Stewart  
Till—Tillotson  
Zen—Zenith

## Fuel Feed:

- 6 G—Gravity  
P—Pressure  
V—Vacuum

## Governor:

- 7 Con—Continental  
Dup—Duplex  
Han—Handy  
Her—Hercules  
Hin—Hinkley  
McC—McCanna  
Mon—Monarch  
Phar—Pharo  
Pier—Pierce  
Sim—Simplex  
Wau—Waukesha

## Ignition System:

- 8 Apo—Apollo  
AtK—Atwater Kent  
AuL—Auto-Lite  
Ber—Berling  
Bos—Bosch  
Con—Connecticut  
Del—Delco  
Eis—Eisemann  
Kin—Kingston  
KW—K. W. Ignition Co.  
Lor—Lorraine  
NE—North East  
POL—Prest-O-Lite  
Rm—Remy  
RBo—Robert Bosch  
Sim—Simms  
Spl—Splitdorf  
Wag—Wagner  
Wes—Westinghouse

## Engine Starter:

- 9 AC—Allis-Chalmers  
AtK—Atwater Kent  
AuL—Auto-Lite  
Bj—Bijur  
Bos—Bosch  
Del—Delco  
Dy—Dyneto  
GD—Gray & Davis  
LN—Leece-Neville  
NE—North East  
Rm—Remy  
Sim—Simms  
USL—U. S. L.  
Wes—Westinghouse  
Wg—Wagner

## Clutch (Make):

- 10 B.B.—Borg & Beck  
B-Li—Brown-Lipe  
Covt—Covert  
Det—Detlaff  
DG—Detroit Gear & Mach.  
Dod—Dodge  
Full—Fuller  
Hart—Hartford  
Hoos—Hoosier  
HS—Hele-Shaw  
M-E—Merchant & Evans  
Mun—Muncie  
W-Gr—Warner Gear

## Gearset:

- 11 B-Li—Brown-Lipe  
Cott—Cotta  
Covt—Covert  
Det—Detroit  
Dod—Dodge  
Dun—Dundore  
Durs—Durstion  
Full—Fuller  
G-Le—Grant Lees  
MM—Mechanics Mach. Co.  
Mun—Muncie  
W-C—Warner Corporation  
W-Gr—Warner Gear

## Location of Gearset:

- 12 A—Amidships  
J—Unit with jackshaft  
R—Rear  
U—Unit with engine

## Universal:

- 13 Ac—Acme  
Arv—Arvac  
Bld—Blood-Brothers  
Det—Detroit  
Hart—Hartford  
MM—Mechanics  
M-E—Merchant & Evans  
Nor—Norwalk  
Pet—Cleveland Universal  
Pick—Pick  
Sned—Snead  
Spic—Spicer  
Ster—Sterling  
Ther—Thermoid  
UM—Universal Machine  
UP—Universal Products  
Var—Varied

## Springs:

- 14 Am—Am. Auto Parts  
Arm—Armstrong  
Bea—Beans  
Bet—Betts  
Cham—Champion  
Del—Delany  
Det—Detroit  
GC—Garden City  
Har—Harvey  
IC—Iron City  
Kal—Kalamazoo  
Lah—Laher  
Lig—Liggett  
Mar—Maremont  
Math—Mather  
Mer—Merrill  
Nat—National  
Pen—Penn  
Per—Perfection  
P.S.—Point Spring Co.  
Row—Rowland  
Shel—Sheldon  
SP—Spring Perch  
Stan—Stan-Par  
SS—Standard Steel  
Ster—Sterling  
Tem—Temme  
Tut—Tuthill  
US—United States  
Vul—Jenkins Vulcan

## Front Axle:

- 15 Col—Columbia  
Cont—Continental  
Dod—Dodge  
Eat—Eaton  
Fli—Flint  
Sals—Salisbury  
Sav—Savage  
Shel—Sheldon  
Shul—Shuler  
Tim—Timken  
Torb—Torbensen  
Vul—Vulcan

## Final Drive:

- 16 B—Bevel Gear  
C—Chain  
I—Internal Gear  
P—Spur  
R—Double Reduction  
S—Spiral Bevel  
W—Worm

## Rear Axle (Make):

- 17 Col—Columbia  
Clark  
Eat—Eaton  
Fli—Flint  
Huck—Huck  
IrM—Iron Mt.  
LM—L M Axle  
Russ—Russel  
Sals—Salisbury  
Shel—Sheldon  
Stn—Standard Parts  
Thom—Thomson  
Tim—Timken  
Torb—Torbensen  
Vul—Vulcan  
Walk—Walker  
Wis—Wisconsin

## Rear Axle (Type):

- 18 F—Floating  
D—Dead  
½—Semi-Floating  
¾—¾-Floating

## Steering Gear:

- 19 CAS—C. A. S. Products Co.  
Dit—Ditwiler  
Dod—Dodge  
Gem—Gemmer  
Hin—Keystone Hindley  
Jac—Jacox  
Lav—Lavine  
M-P—Muncie Products  
Ros—Ross  
Sag—Saginaw Products Co.  
Woh—Wohlrab

## Wheels:

- 20 Arc—Archibald  
AuW—Auto Wheel  
Bim—Bimel  
Bet—Bethlehem  
Bud—Budd  
Cla—Clark  
Day—Dayton  
Det—Detroit  
Dis—Disteel  
Hay—Hayes  
Hoo—Hoopes Brothers  
Imp—Imperial  
Ind—Indestructible  
Jon—Jones  
Kel—Kelsey  
MM—Michigan Malleable  
Iron Co.  
Mot—Motor Wheel  
Mun—Muncie Wheel  
Mut—Mutual  
Nor—Northern  
Pru—Prudden  
Roy—Royer  
Sch—Schwartz  
Smi—Smith  
Sta—Stanwell  
StM—St. Mary  
Stn—Standard  
Van—Van Wheel  
Wal—Walker  
Way—Wayne

## Rim Equipment:

- 21 Det—Detroit  
Fir—Firestone  
Gdy—Goodyear  
Hay—Hayes  
Jax—Jaxon  
Kel—Kelsey  
Mil—Miller

# Commercial Car Specifications—Corrected Monthly

The Specifications, Chassis Prices, Etc., Are Corrected Each Month From Data Supplied Direct by the Makers. Gasoline Tractor-Trucks Will be Found at the End of Gasoline Commercial Cars

See Preceding Table for Replacement Data. Truck Frame Dimensions Are Included in Same Table

(Where prices are not given it is because we have been unable to get them from authoritative sources)

For full name and address of manufacturer and information regarding complete line see page 52

\*This symbol in the wheelbase column indicates that more than one wheelbase is furnished

TRADE NAME AND MODEL	ENGINE DETAILS										GEARSET		FRONT AXLE and Model Number	REAR AXLE Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS			Chassis Weight (Stripped)	Wheelbase			
	Make and Model Number 4 cylinder unless otherwise noted.	N.A.C.C. Horsepower	Valve Arrangement	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	Make and Model Number							Location	Speeds						
																					Universal (Make)			Springs (Make)	Final Drive	
1000 Pounds																										
Chevrolet, Sup. LD....	395	3 1/2 x 4	21.7	H	Har	FS	Zen	G	G	Rm	Own	Own	U	3	SS	Own	Own	3.77	12.52	Own	30x3 1/2	Hay	Jax	1390 103		
Gray.....	420	3 1/2 x 4	21.1	L	Cor	S	Scoc	G	G	Wes	Own	Tim O-100	U	3	Det	Own	Tim 0500	3.9	13.19	Own	30x3 1/2	Kel	Kel	1130 100		
Overland.....	395	3 1/2 x 4	19.6	L	Own	FS	Till	G	G	AuL	B.B.	Own	U	3	Own	Own	Own	4.5	17.68	Own	30x3 1/2	Hay	Hay	1550 100		
1500 Pounds																										
American-LaFrance 1R	.....	4 1/2 x 5	28.9	L	Bus	F	Strm	G	V	Wes	Own	Own	A	3	Mer	Own	Own	4.5	20.1	Own	33x5*	.....	Fir	.....	139 1/2	
Commercer 9.....	.....	3 1/2 x 5	22.5	L	Lng	FS	Strm	V	V	Bj	DG	Own	U	3	UM	Am	Sals	5.73	18.33	Jac	33x5*	.....	.....	.....	3100 127	
Corbett 8 Speed Truck.	.....	3 1/2 x 5	19.8	L	Own	FS	Strm	G	G	Wes	Own	Shel 33FA500	U	3	Hart	Shel	W1002	6	20.18	Own	34x4 1/2*	.....	.....	.....	3420 130	
Diamond T-75.....	.....	4 1/2 x 5	25.6	L	GO	FS	Stew	G	G	Wes	Own	Col 5000	U	3	Spic	Math	Col 52000	5.12	18.58	Own	33x5*	.....	.....	.....	2825 130	
Dodge Brothers.....	730	3 1/2 x 4 1/2	24	L	McC	FS	Stew	G	G	Wes	Own	Own	U	3	Own	Own	Own	4.54	18.9	Own	32x4*	.....	.....	.....	2500 124	
King Zeiter.....	1650	3 1/2 x 4 1/2	22.5	L	Chic	FS	Stew	G	G	Wes	Own	Tim 1216C	U	3	Pick	Mar	Tim 5311	4.9	20.04	Own	33x5*	.....	.....	.....	2500 128	
Perfection A.....	1245	3 1/2 x 5	19.6	L	Own	FS	Zen	G	G	Wes	Own	Tim 1216-B	U	3	Own	Own	Tim 5311	5.22	18.9	Own	33x5*	.....	.....	.....	2500 125	
Rainier R-31.....	1970	3 1/2 x 5	22.5	L	Har	FS	Zen	G	G	Wes	Own	Tim 1250	U	3	Per	Det	Tim 6250	6.75	22.5	Own	35x5*	.....	.....	.....	2500 122	
Rugles 15.....	.....	3 1/2 x 5	19.6	L	Per	FS	Zen	G	G	Wes	Own	M-E	U	3	Spic	Det	Col 3000	5.81	19.7	Own	32x4 1/2	.....	.....	.....	2300 122	
White 15.....	2400	3 1/2 x 5	22.5	L	.....	FS	Zen	G	G	Wes	Own	B-Li	U	3	Own	Own	Col 3000	5.36	18.6	Own	34x5*	.....	.....	.....	3225 133 1/2	
Yellow Cab. M-22-3/4..	1590	3 1/2 x 5	22.5	L	Lng	FS	Zen	G	G	Wes	Own	B-Li	U	3	Spic	Math	Own	4.9	16.31	Own	33x4 1/2*	.....	.....	.....	2400 117	
1 Ton																										
Acme 20.....	2200	3 1/2 x 5	22.5	L	GO	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Det	Own	Tim 6250	6.75	27	Own	34x5*	.....	.....	.....	3060 129	
Autocar F.....	2300	4 1/2 x 5	18	L	Own	FS	Strm	G	G	Wes	Own	Tim 1250	U	3	Spic	Det	Own	8.3	33.2	Own	34x5*	.....	.....	.....	3800 97	
Autocar G.....	.....	3 1/2 x 5	19.6	L	Stn	FS	Strm	G	G	Wes	Own	Tim 1250	U	3	Spic	Det	Own	8.3	33.2	Own	34x5*	.....	.....	.....	3000 124	
Bessemer G.....	1595	3 1/2 x 5	19.6	L	GO	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	6.86	18.8	Own	35x5*	.....	.....	.....	3000 120	
Bethlehem KN.....	1850	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.13	20.5	Own	35x5*	.....	.....	.....	3160 125	
Bets J-3.....	.....	3 1/2 x 5	22.5	L	GO	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 124	
Brockway E-2.....	1700	4 1/2 x 5	22.5	L	Har	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.85	23.46	Own	35x5*	.....	.....	.....	3160 180	
Casco Model A.....	495	3 1/2 x 5	22.5	L	Own	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Chevrolet Sup.Util. Exp.	.....	3 1/2 x 5	22.5	L	GO	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.85	23.46	Own	35x5*	.....	.....	.....	3160 180	
Concord E.....	1695	3 1/2 x 5	22.5	L	Har	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Diehl A.....	.....	3 1/2 x 5	22.5	L	GO	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.85	23.46	Own	35x5*	.....	.....	.....	3160 180	
D-Oik A-1.....	1695	3 1/2 x 5	22.5	L	Mod	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Dorris K-2.....	2490	3 1/2 x 5	22.5	L	Mod	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Duplex D.....	.....	3 1/2 x 5	22.5	L	Own	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Federal T.....	380	3 1/2 x 5	22.5	L	Own	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Ford T.....	1495	3 1/2 x 5	22.5	L	Liv	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Fulton A.....	1875	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 16.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1875	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	McC	FS	Strm	V	V	Wes	Own	Tim 1250	U	3	Spic	Det	Own	5.43	18.1	Own	35x5*	.....	.....	.....	3160 180	
Gafford 20.....	1695	3 1/2 x 5	22.5	L	Chic	FS	Strm	V	V	Wes																



## 1½ Ton

For full name and address of manufacturer and information regarding complete line see page 52

TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS										GEARSET				FRONT AXLE		REAR AXLE		TIRES, WHEELS, RIMS		Chassis Weight (Stripped)	Wheelbase											
		Make and Model Number 4 cylinder unless otherwise noted.	Bore and Stroke	N.A.C.C.	Horsepower	Valve Arrangement	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	Make and Model Number		Location	Speeds	Universal (Make)	Springs (Make)	Model Number			Final Drive	Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	Front		Rear	Wheels (Make)	Rim Equipment
															Make and Model Number	Final Drive																		
1½ Ton—Con'd																																		
Godfredson 40	2525	Buda GBU	4 1/2 x 5 1/4	25.6	L	McC	F	FS	Zen	V	...	Bos	AtK	B-Li	B-Li 35	U	4	Spic	UP	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	4000	144		
Graham Bros CA	1325	Dodge	3 1/2 x 4 1/4	24.1	L	McC	F	FS	Stew	V	...	NE	NE	Dod	Dod	U	4	UP	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	2910	140		
Gramm-Pioneer 15	1750	Cont N	3 1/2 x 5	22.5	L	McC	F	FS	Stm	V	...	NE	NE	Full	Full	U	4	UP	Per	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3660	138		
Gramm-Pioneer 66	2250	Cont J-4	3 1/2 x 5	22.5	L	McC	F	FS	Stm	V	...	NE	NE	Full	Full	U	4	UP	Per	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3660	138		
Grass Premier 60	1800	Wau Y	4 1/2 x 5 1/4	25.6	L	GO	F	F	Zen	V	...	Bos	Bos	B-Li	B-Li 30	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Guided D	2350	Wau Y	4 1/2 x 5 1/4	25.6	L	GO	F	F	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
G. W. W. Super	1650	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Hawkeye K	1900	Buda WTU	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Hog	1350	Buda WTU	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Independent GW (Iowa)	2150	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Indiana 12	...	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
International 31	...	Buda WTU	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Jumbo 15-S	...	Buda WTU	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Kelly-Springfield K33	1650	H-Sp 7000	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
King Zeiter	2275	Buda WTU	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Kissel General Utility	1975	Cont J-4	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Krebs K45	2600	Cont K4	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Larabee XJ	2465	Cont R-6	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Lucas-Haus W	2490	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Mack AB	3000	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Mack AB	3450	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Mason Road King	1295	Her O	4 1/2 x 5 1/4	25.6	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Maxwell	2475	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Menominee H	2350	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Morland BX	...	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
National GA	...	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Nelson-LeMoon G-2	1990	Cont K-4	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Noble A-21	...	Buda WTU	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Ogden D	2150	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Parker E-24	...	Cont J-4	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Power	2590	Cont J-4	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Rainier R36	1895	Cont N	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Sandow	2600	Cont N	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Schacht H	2375	Wau BUX	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Selden Unit 30	...	Cont J-4	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Selden 33	...	Cont K-4	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Service Contratruc	...	Buda WTU	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Signal H	3240	Cont N	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	3000	132		
Standard 1½ K	1970	Cont N	3 1/2 x 5 1/4	22.5	L	McC	F	FS	Zen	V	...	Bos	Bos	Full	Full	U	4	Spic	Det	Tim 1452	W	Tim 6460	18	6.28	34.8	Gem	36x8 1/2	38x7 1/2	MM	Fir	300			



## 2 Ton—Con'd

[illegible]

For full name and address of manufacturer and information regarding complete line see page 52

TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS										GEARSET		FRONT AXLE and Model Number	REAR AXLE	TIRES, WHEELS, RIMS		Chassis Weight (Striped)	Wheelbase													
		Bore and Stroke	N.A.C.C. Horsepower	Valve Arrangement	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	Make and Model Number			Location	Speeds			Universal (Make)	Springs (Make)	Final Drive	Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	Wheels (Make)		Rim Equipment		
2 1/2 Ton		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21										
Aome 60.	3350	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
American-Lafayette 2R	3350	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
American-Lafayette 2R	3350	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Armstrong HWC	3150	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Atterbury 22C Std.	3375	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Atterbury 22C LWB.	3475	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Autocar H.	3450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Autocar H.	3450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Available JH2 1/2	3100	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Bessemer JH2 1/2	2985	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Brinton D-3	2975	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Brookway K.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Chicago 25.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Columbia G.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Clydesdale 8.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Commerce 25B.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Concord J.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Corbett B-22.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Day-Elder D.N.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Dependable D.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Diamond T-2.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Dixon C.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
D-Olt C.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Duplex AC.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Duplex AB.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Federal U-2.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Garford 70 H.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Gary J.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Godfrisson 50.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Gramm-Pioneer 125.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Grass Premier 80.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Harvey WFB.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Hawkeye M.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Independent HW (Iowa)	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Indiana 25.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
International 52-Bus.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Jumbo 25.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Kankakee H.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Kelly-Springfield K380.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Kelly-Springfield K-39.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup	Eis	Del	B.B.	Cott RU	U	4	Bld	Det	SP	Thom H	W	9.25	48.10	Ros	36x4	36x4	Bim	36x4	4830	152		
Kenworth K-8.	2450	Cont K-4	4 1/2 x 5 1/4	27.2	L	GO	FS	Zen	VGG	Dup																						



## 2½ Ton—Con'd

#### 4 Ton—Con'd



#### 4 Ton—Con'd

For full name and address of manufacturer and information regarding complete line see page 52

TRADE NAME AND MODEL	Chassis Price	ENGINE DETAILS										GEARSET				FRONT AXLE		Tires, Wheels, Rims				Chassis Weight (Stripped)	Wheelbase																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
		Make and Model Number 4 cylinder unless otherwise noted.	Bore and Stroke	N. A. C. C.	Horsepower	Valve Arrange't	Radiator (Make)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Ignition System	Engine Starter	Clutch (Make)	Make and Model Number	Location	Speeds	Universal (Make)	Springs (Make)	Front Axle and Model Number	Final Drive			Make and Model Number	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	*Pneumatic †Dual ‡Solid		Wheels (Make)	Rim Equipment																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
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## ELECTRIC COMMERCIAL CARS

Name and Model Number	Total Weight Resting on Four Tires	Chassis Weight Exclusive of Battery	Minimum Load Capacity	Maximum Load Capacity	Chassis Price	Maximum Speed	Location of Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
C-T D-1.....	5400	2200				14	A	55	G-E	Own	4	Own	Flot	Shel	36x3	36x3½	W	100	69
C-T B-1.5.....	6100	2300				14	A	60	G-E	Own	4	Own	Flot	Shel	36x3	36x4	W	91½	65
C-T D-1.5.....	6200	2300				14	A	60	G-E	Own	4	Own	Flot	Shel	36x3	36x4	W	116	71
C-T B-2.....	7300	2400				14	A	50	G-E	Own	4	Own	Flot	Shel	36x3½	36x5	W	101	66
C-T D-2.....	7300	2400				14	A	50	G-E	Own	4	Own	Flot	Shel	36x3½	36x5	W	124	70
C-T B-4.....	11750	4000				12	A	50	G-E	Own	4	Own	Flot	Shel	36x4	36x4½	W	116	68
C-T C-6.....	14400	4300				10	A	45	G-E	Own	4	I	D	Shel	36x4	36x4½	W	122	70
C-T C-7.....	16900	5000				10	A	45	G-E	Own	4	I	D	Shel	36x5	36x5½	W	126	65
C-T A-7.....	17700	5800				11	A	45	G-E	Own	4	I	D	Shel	36x6	36x4½	W	122	60
C-T A-10.....	22250	6500				10	A	45	G-E	Own	4	I	D	Shel	36x7	36x5½	W	132	59
Kelland AT.....	5850	1950	1000	1500		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
Kelland BT.....	6950	2050	1500	2000		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
Kelland CT.....	7050	2150	2000	2500		15	S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	102	60
Kelland AH.....	6400	2500	1000	1500		15	A	45	G-E	G-E	4	C	D	Mer	36x3	36x3	Hin	106	60
Kelland BH.....	7500	2600	1500	2000		15	A	45	G-E	G-E	4	C	D	Mer	36x3½	36x3½	Hin	106	60
Kelland CH.....	7600	2700	2000	2500		15	A	45	G-E	G-E	4	C	D	Mer	36x3½	36x4	Hin	106	60
Kelland ATS.....	6100	2200	1000	1500		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
Kelland BTS.....	7200	2300	1500	2000		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
Kelland CTS.....	7300	2400	2000	2500		15	H&S	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	114	60
Lansden Century.....	1700	1250	1600	1500		15	S	50	G-E	Own	4	R	Flot	SP	32x4½	32x4½	Lav	108	50
Lansden Century.....	1950	2000	1850	1500		15	S	50	G-E	Own	4	R	Flot	SP	33x5	33x5	Lav	112	50
Lansden Marathon.....	2900	2000	1850	1200		12	A	50	G-E	Own	4	C	D	SP	36x3½	36x4	.....	108	60
Lansden Marathon.....	4400	4000	2250	1100		11	A	50	G-E	Own	4	C	D	SP	36x4	36x3½	.....	120	60
Lansden ME.....	5700	7000	2950	1000		10	A	45	G-E	Own	4	C	D	SP	36x5	36x5½	.....	133	60
Lansden MF.....	7500	10000	3350	900		9	A	40	G-E	Own	4	C	D	SP	36x6	36x6½	.....	146	60
O. B. A.....						14			G-E	Own	.....	C	D		36x3½	36x4	Own	103	.....
O. B. B.....						13			G-E	Own	.....	C	D		36x4	36x3½	Own	107	.....
O. B. C.....						11			G-E	Own	.....	C	D		36x5	36x4	Own	135	.....
O. B. D.....						10			G-E	Own	.....	C	D		36x6	36x5	Own	143	.....
Steinmets 10.....	2000					16	H&S	52	Diehl	Own	4	R	Russ	Shel	32x4½	32x4½	Lav	106	60
Steinmets 15.....	2300					16	H&S	55	Diehl	Own	4	R	Russ	Shel	33x5	33x5	Lav	114	60
Walker 12.....	1900					15		60	G-E	West	4	.....	Tim	Det	32x3	32x3½	Ross	104	66
Walker 15.....	2600					15		60	West	West	5	Own	Own	Math	34x3	36x3½	Ross	94	66
Walker 22.....	2800					14		60	West	West	5	Own	Own	Math	34x3½	36x4	Ross	101	66
Walker 42.....	3800					13		60	West	West	5	Own	Own	Math	36x4	36x6	Ross	114	66
Walker N.....	6400					10		50	West	West	5	Own	Own	Math	36x6	38x6½	Ross	141	66
Walker P.....	5600					11		50	West	West	5	Own	Own	Math	36x5	38x5½	Ross	131	66
Walter HD.....	6800	2300	2000	2200		16	A	60	Diehl	G-E	5	B	.....		32x3½	32x4	Ross	98	60
Walter EN.....	13200	4400	5000	3100		15	A	50	G-E	G-E	5	Own	D		36x4	36x7	Gem	114	60
Walter EL.....	16800	5000	7000	3700		13½	A	50	G-E	G-E	5	Own	D		36x5	36x4	Gem	132	60
Walter ES.....	23600	7200	11000	4500		12	A	50	G-E	G-E	5	Own	D		36x6	40x6	Ross	150	70
Walter ER.....	28400	7500	15000	4800		11	A	50	G-E	G-E	5	Own	D		36x7	40x7	Ross	150	70
Ward A211.....	4500	1650	550	1150		15	S	75	G-E	Own	4	W	Shel	Shel	32x4*	33x4½*	Own	88	56
Ward B-222.....	6000	2300	800	1700		14	S	84	G-E	Own	4	W	Shel	Shel	32x3½*	32x4*	Own	91	62
Ward C-211.....	8000	2670	1650	2850		13	S	65	G-E	Own	4	W	Shel	Shel	32x3½*	34x5*	Own	96	64
Ward E-211.....	12000	3570	4500	5400		12½	S	56½	G-E	Own	4	W	Shel	Shel	34x4*	36x6*	Own	108	65
Ward E-111.....	12000	4170	4000	5000		12½	A	45	G-E	G-E	4	W	Shel	Shel	34x4*	36x6*	Own	108	65
Ward G-111.....	16000	5200	5850	7050		11	A	44	G-E	G-E	5	W	Shel	Shel	36x5*	36x8*	Own	120	68
Ward J-111.....	22500	7350	8850	10500		10	A	39½	G-E	G-E	5	W	Shel	Shel	36x6*	36x10*	Own	132	70
Ward M-111.....	31000	9600	13500	15750		9	A	36	G-E	G-E	5	W	Shel	Shel	36x7*	40x14*	Own	146	71

NOTE: Battery Equipment in all above makes is at the option of the purchaser. Battery Location Abbreviations: A—amidships; H—under hood; and S—under seat.

## Organization of National Boosters to be Effected in March

In keeping with the policy to expand the activities of the Booster Club movement, the parent organization, the New England No. 1, suggested at its January meeting, held at Boston, that a club be formed at New York City and Philadelphia. About 30 odd per cent of the parent club are New York members and it is believed that these will transfer their active membership to the New York club if the latter is organized. Announcement was made of the formation of Booster Club at Minneapolis, Minn., and San Francisco, Cal.

President T. F. Wilson, N. E. No. 1, stated that plans were perfected for the organization of the National Boosters and that it would be effected at the March meeting, which occurs during the Boston show. One of the plans is to make up the board of directors of the presidents of the various clubs and delegates to conventions, etc., of the directors of the clubs.

To stimulate attendance it was voted at the New England meeting to impose a fine on a member who misses three consecutive meetings but the delinquent member may file an excuse with the board of directors.

The greater part of the business meeting was given over to a discussion of the pros and cons of missionary men of the manufacturer co-operating with the jobber and their salesmen. An educational film along these lines was shown by Daniel Caywood, New England representative of the Black & Decker Mfg. Co. The March meeting will be held on the third Monday of the month.

## Rowe Motor Mfg. Company Announces New Officers

Officers have been elected for the Rowe Motor Mfg. Co., Lancaster, Pa., manufacturers of worm driven trucks, as follows: Charles J. Lebzelter, president; Elias Groff, second vice-president; J. Cameron Mateer, secretary; Elmer E. Good, treasurer.

## Martin-Parry Corporation Purchases Oakes Company of Indianapolis

Purchase of the Oakes Co., of Indianapolis, by the Martin-Parry Corp., whose general offices are at York, Pa., has been confirmed at a directors' meeting of the Martin-Parry organization held in January. The plant of the Oakes Co. is located in the southwestern section of Indianapolis on the Big Four Railroad. It employs 300 men and has under cover more than 6000 sq. ft. of floor space. The company is today serving over 200 motor vehicle manufacturers with equipment.

The accessories and parts which the Oakes Co. manufactures includes: Radiator fans, spare tire locks, spare wheel locks, tire carriers, transmission locks, radiator shutters, and stampings of all kinds.

The Indianapolis plant will continue manufacturing the same products as heretofore and will in addition supply Martin-Parry with stampings and other metal parts.

## DETAILED MOTOR

These Tables Consist Only of Specifications Received Directly From the Manufacturer. Every Commercial Chassis or Those Recom

Line Number	TRADE NAME AND NUMBER	Capacity Seats	Chassis Price	UNLOADED WEIGHT (In Pounds)			GENERAL DIMENSIONS							ENGINE DETAILS										NORMAL SPEED M.P.H.	
				Chassis Only	Chassis and Body	Recommended Body Weight	Wheelbase	Tread, Front	Tread, Rear	Floor Height	Turning Radius	Over-All Length	Over-All Width	Clearance from Ground	Make and Model Number	Bore and Stroke	Horsepower	Valve Arrang'mt	Fuel Feed	Lubrication	Carburetor (Make)	Radiator (Make)	Ignition System	High	Low
1	Acme K	30	6900	9900	3000	200	58 1/2	74	27	38	312	90	5	Cont 6B	3 3/4 x 5	33.7	L	V	F	Zen	Own	Eis	30	5.7	
2	Bethlehem KN	16	1695	2650	800	125	56	56	...	26	175	64 1/2	10	Own	3 1/2 x 5	19.6	L	V	F	Zen	GO	Bos	35	...	
3	Bethlehem GN	25	2495	4100	1200	138	56	57 1/2	...	25	208 1/2	66 1/2	9	Own	4 x 5 1/2	25.6	L	V	F	Zen	GO	Bos	25	...	
4	Bethlehem HN	35	3295	5250	1500	145	56	59 1/2	...	26	226 1/2	70	10	Own	4 x 5 1/2	25.6	L	V	F	Zen	GO	Bos	25	...	
5	Brinton	25	3400	...	...	Op	58	58	36	30	Op	...	12	Cont	4 1/2 x 5 1/2	32.4	L	G	F	Strm	Chic	Bos	...	...	
6	Brookway	25	6400	9280	2880	185	66 1/2	71	28 1/2	31 1/2	295 1/2	84	10	Buda YBU	4 1/2 x 6	32.4	L	V	F	Zen	GO	Bos	25	5	
7	Brookway	30	6400	9580	3180	197	66 1/2	71	28 1/2	31 1/2	324 1/2	84	10	Buda YBU	4 1/2 x 6	32.4	L	V	F	Zen	GO	Bos	25	5	
8	Clinton	30	5925	8700	2775	184	58 1/2	58 1/2	30	37	270	75 1/2	9 1/2	Buda EBU	4 1/2 x 5 1/2	28.9	L	V	F	Zen	Own	Bos	30	3	
9	Commerce 25	24	5400	9400	4000	198	56	56	33 1/2	33	250	...	9	Cont 6B	3 3/4 x 5	33.7	L	V	F	Zen	Lng	Bos	35	7	
10	Commerce 14	17	4200	...	...	160	56	56	30	27	228	81	9	Cont 6B	3 3/4 x 5	33.7	L	V	F	Zen	Lng	Bos	35	7	
11	Commerce 20	14	4300	7300	7300	189	56	56	30	27	231	74	9	Cont 6B	3 3/4 x 5	33.7	L	V	F	Zen	Lng	Bos	35	7	
12	Day-Elder 20	20	5200	...	...	2500	168	56	58	32	30	237	70 1/2	11	Cont K4	4 1/2 x 5 1/2	27.2	L	V	F	Zen	Bus	Eis	35	10
13	Day-Elder 25	25	5600	...	...	3000	180	58	58 1/2	32	30	260	75 1/2	11	Buda EBU	4 1/2 x 5 1/2	28.9	L	V	F	Zen	Bus	Eis	35	7
14	Day-Elder 30	30	6000	...	...	3500	192	68 1/2	74	25	271 1/2	90	6 1/2	Cont 6T	3 3/2 x 5 1/2	31.5	L	V	F	Zen	Bus	Eis	35	7	
15	Defiance GL-3	19	3200	4700	1200	140	56	56	28	21	210	84	8	Cont 8 R	3 3/4 x 5 1/2	27.3	L	V	F	Zen	Chic	Bos	30	5	
16	Denby 216	30	6860	...	...	216	70	70	22	73	287	82	9 1/2	Cont 6B	3 3/4 x 5	33.7	L	V	F	Zen	Lng	Bos	47	9	
17	Fageol Inter City	22	8700	...	...	218	70	70	21	38	306	84	7 1/2	HS 50	4 1/2 x 5 1/2	28.9	H	V	F	Zen	Lng	Del	35	6	
18	Fageol Street Car	29	9600	...	...	218	70	70 1/2	20	38	312	89	7 1/2	HS 50	4 1/2 x 5 1/2	28.9	H	V	F	Zen	Lng	Del	30	7	
19	Federal	18	4200	...	...	1800	160	56	59 1/2	28	28	245	...	10	Cont 6M	3 3/4 x 5 1/2	27.3	L	V	F	Zen	Lng	Eis	35	7
20	Federal	25	5450	...	...	2500	190	60	60	30	28	266 1/2	...	10	Cont 6B	3 3/4 x 5	33.7	L	V	F	Zen	Mod	Eis	35	6
21	Fifth Avenue J.	29	5660	8235	2575	172	67 1/2	71 1/2	32	31	277	87 1/2	7	Yellow	4 x 6	25.6	S	V	F	Zen	Own	Eis	30	7.5	
22	Ford	...	...	...	...	123	56	56	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
23	Garford 51D	29	4350	6300	9400	3100	187	68	72	28 1/2	30	295	91	7	Buda YBU	4 1/2 x 6	32.4	L	V	F	Strm	Own	Rm	35	5
24	Garford 726	25	3750	4800	7800	3000	168	56	65 1/2	32	30	236	78 1/2	7 1/2	Buda EBU	4 1/2 x 5 1/2	28.9	L	V	F	Strm	Own	Spl	35	5.4
25	Graham CA	16	1325	2910	4800	1800	140	56	56	34	26 1/2	247	77	9 1/2	Dodge	3 1/2 x 4 1/2	24.1	L	V	S	Stew	McC	NE	25	...
26	Guidor	30	4500	5600	8000	3000	191	64	70	26	70	300	83	11	Own 30	4 1/2 x 5 1/2	...	L	V	F	Zen	GO	...	30	5
27	Indiana 20	22	5300	8900	3600	174	60	68	35	29	252 3/4	89 1/2	9 1/2	Own 38	4 1/2 x 5 1/2	27.2	L	V	F	Strm	McC	Eis	23	6	
28	Indiana 25	26	5850	9950	4100	192	60	68	35	32	279 3/4	89 1/2	9 1/2	Own 38	4 1/2 x 5 1/2	27.2	L	V	F	Strm	McC	Eis	23	6	
29	International S.	14	2750	3500	750	124	56	56	...	...	...	...	...	...	Lyc KB	3 1/2 x 5	19.6	L	G	FS	Ens	GO	Eis	25	8
30	Jumbo	25	6000	8500	2800	204	60	72	27	...	260	84	8	Buda EBU	4 1/2 x 5 1/2	28.9	L	V	F	Zen	GO	Eis	25	8	
31	Kissel	18	5200	7780	2400	202	64 1/2	66	24	...	252	76	8	Own 4-36	4 1/2 x 5 1/2	28.9	L	V	F	Strm	Spar	Bos	40	...	
32	Larrabee X 2	14	3350	4750	...	155	56	56	29	28	216	70	11	Cont 8R	3 1/2 x 5 1/2	27.3	L	V	F	Zen	Fed	Bos	40	4	
33	Larrabee XJ3	21	4300	6100	...	186	62	62	26	34	250	90	9	Cont 8R	3 1/2 x 5 1/2	27.3	L	V	F	Zen	Fed	Bos	30	3	
34	Luedinghaus	...	4400	5600	1200	170	...	58	44	...	...	...	11 1/2	...	...	...	...	...	...	...	...	...	...	...	
35	Mack AB	25	4435	6075	9075	3000	195	58 1/2	60 1/2	25 1/2	37 1/2	300	88	6 1/2	Own	4 1/2 x 5	28.9	L	G	FS	Zen	Own	Spl	33	8
36	Mason	21	1395	3100	5400	2300	150	56	56	30	...	246	85	10	Her O	4 x 5	25.6	L	G	F	Zen	Fed	AUL	35	12
37	Master DDB	30	6000	9500	3500	194	59	59	26	33 1/2	...	...	...	Buda EBU	4 1/2 x 5 1/2	28.9	L	V	FS	Zen	Chic	Eis	25	5	
38	Menominee DB	25	5900	9100	3200	186	68	73	26	30	256	86	10	Wis TAU	4 x 6	25.6	L	V	F	Zen	Own	...	32	6	
39	Moreland RC	16	2280	3850	5850	2000	180	56	57 1/2	23 1/2	...	...	...	7	Her O	4 x 5	25.6	L	V	F	Zen	Own	Spl	25	...
40	Moreland EC	20	3780	4590	7590	3000	178	61	58	24 1/2	...	...	...	8 1/2	Cont K4	4 1/2 x 5 1/2	27.3	L	V	F	Strm	Own	Spl	25	...
41	Moreland AC	25	4700	5660	9160	3500	187	68	69	25 1/2	...	...	...	9	Cont L4	4 1/2 x 5 1/2	32.5	L	V	F	Strm	Own	Spl	25	...
42	Parker B 23 B	16	1400	2700	4600	1900	131	58	58	30	21	204	66	10	Buda WTU	3 1/2 x 5 1/2	22.5	L	V	F	Zen	Own	Wes	35	9
43	Parker B 24 B	18	2500	3600	5800	2200	150	58	58	28	25	218	66	10	Wis SU	4 x 5	25.6	H	V	F	Strm	Own	Wes	40	10
44	Perfection CB	24	4400	5800	8900	3000	227	68 1/2	74 1/2	25 1/2	39	275	87	11	Cont 6B	3 1/2 x 5	33.7	L	V	F	Zen	Mod	Eis	35	6
45	Phila. Motor Coach P	65	6500	8750	14650	5900	216	72	75	20 1/2	25	333 3/4	90	8	Own 6 cyl.	4 x 6	38.4	H	V	F	Zen	GO	NE	25	...
46	Reo F	...	1185	2705	3360	650	128	56	56	34	22 1/2	190	66	10 1/2	Own F	4 1/2 x 5 1/2	27.3	F	G	FS	John	Own	NE	45	7
47	Ruggies Chanticleer	16	...	3000	5000	...	150	56	56	28	27	206	73	10 1/2	Her O	4 x 5	25.6	L	V	F	Strm	Per	Rm	35	8
48	Selden	...	7200	10200	3000	195	68	74	29 1/2	33	309	91	7	Cont L4	4 1/2 x 5 1/2	32.4	L	V	F	Zen	Lng	Eis	25	6.27	
49	Selden	...	7200	10200	3000	195	68	74	29 1/2	33	309	91	7	Cont 6B	3 1/2 x 5	33.8	L	V	F	Zen	Lng	Eis	25	6.27	
50	Service 61B	30	5850	...	...	192	58	66	30	24	276 1/2	80	8 1/2	Buda EBU	4 1/2 x 5 1/2	43.4	L	V	F	Strm	McC	Eis	25	4.5	
51	Service 25B	20	3650	...	...	159	56 1/2	57 1/2	28	18	221	65 1/2	8	Buda WTU	3 1/2 x 5 1/2	33.8	L	V	F	Opt	Lng	Rm	35	6	
52	Sterling GB1	21	4050	4800	7000	2200	156	56	58	29 1/2	35	234	70 1/2	10	Own	4 x 5 1/2	25.6	L	V	F	Zen	Own	Eis	28	...
53	Sterling GB2	29	4575	5700	8500	2800	174	60 1/2	58 1/2	29 1/2	35	263	75 1/2	11	Own	4 1/2 x 5 1/2	30.6	L	V	F	Zen	Own	Eis	28	...
54	Stoughton AS	16	2400	3300	5520	2220	162	56	56	30	27	224	80	11 1/2	Mid 412	3 1/2 x 5	31.5	H	V	F	Zen	Chic	Rm	34	8.5
55	Stoughton DS	24	4890	...	...	180	56	60	...	...	246	34	9 1/												



# BUS SPECIFICATIONS

Car Manufacturer in the Country Was Solicited and the Jobs Listed Are Either Specially Designed Bus mended for This Service

Line Number	ELECTRICAL EQUIPMENT					TRANSMISSION					Universal (Make)	Springs (Make)	Brakes (See Note)	FRONT AXLE		REAR AXLE		Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS				
	Battery (Make)	Model No.	Volts and Amp. Hr.	Starter (Make)	Generator (Make)	Clutch (Make)	Make and Model Number of Gearset	Location	Speeds	Make and Model Number				Final Drive	Make and Model Number	Front	Rear					Wheels (Make)	Rim Equipment			
8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23											
1	WIL	SJRT4	6-111	Del	Rm	B.B.	Cott RU	U	4	Bld	Det	A	1540 B	W	6511 S	F	6.8	35.36	Ros	38x7*	36x6†	Bim	Fir			
2	POL	613SHC	6-111	GD	GD	B.B.	Det	U	3	Spic	Math	A	Eat 750	S	Eat 1000	D	6.86	21.3	Lav	35x5	35x5					
3	POL	613 SHC	6-111	GD	GD	B.B.	Det	U	3	UP	Math	A	Shel 33FA500	R	Wis 66A	S	7.75	24.8	Lav	34x4	34x6					
4	POL	613SHC	6-111	GD	GD	Full	Full	U	4	UP	Math	A	Shel D 343	R	Wis 88E	W	8.67	41.56	Lav	36x4	36x8	Smi	Fir			
5	Exi		12	LN	LN	B-Li	B-Li 50	U	4	Spic	Phil	A	Tim	W	Tim	D	7	37.45	Ros	Opt	Opt	Hoo	Fir			
6	Exi		12	LN	LN	B-Li	B-Li 55	U	4	M-E	Mer	B	Shul 610 B	I	Clark 3DSp	D	7	37.45	Gem			Bud	Fir			
7	Exi		12	LN	LN	B-Li	B-Li 55	U	4	M-E	Mer	B	Shul 610B	I	Clark 3DSp	D	7	37.45	Gem			Bud	Fir			
8	POL	611SHC	6-90	Bos	Bos	B-Li	B-Li 55	U	4	M-E	Row	A	Tim 1544 B	W	Tim 6560	F	6.5	34.8	Ros	32x6*	32x6†	Bud	Fir			
9	Wil	SJR6	6	Bos	Bos	B-Li	B-Li 51	U	4	UM	Am	A	Tim 1520	W	Tim 6460	F	6.8	36.4	Ros	36x6	40x8	Bim	Fir			
10	Wil	SJR6	6	Bos	Bos	B-Li	B-Li 35	U	4	UM	Am	A	Tim 1452	W	Tim 6460	F	6	20.2	Ros	32x6	32x6	Bim	Fir			
11	Wil	SJR6	6	Bos	Bos	B-Li	B-Li 35	U	4	UM	Am	A	Tim 1452	W	Tim 6460	F	6	20.2	Ros	32x6	32x6	Bim	Fir			
12	Wil	SJRT 6	6-153	Bos	Bos	B-Li	B-Li 35	U	3	Spic	Shel	A	Col 7018	W	Tim 6460	F	6	20.2	Gem	36x6*	38x7*					
13	Wil	SJRT 6	6-153	Bos	Bos	B-Li	B-Li 51	U	4	Spic	Shel	A	Col 8513	W	Tim 6560	F	6.8	36.4	Gem	36x6*	40x8*					
14	Wil	SJRT 6	6-153	Bos	Bos	B-Li	B-Li 51	U	4	Spic	Shel	A	Shul 610	W	Tim 6511S	F	6.8	36.4	Gem	36x6*	36x6*					
15	Wil	SJRT 4	6	Bos	Bos	Full	Full SU 1	U	3	Spic	Det	A	Col 7000	B	Eat 1000	F	6.14	32.1	Lav	32x6*	34x7*	StM	Fir			
16	Wil		6-200	Bos	Bos	B-Li	B-Li	U	4	UP	Det	A	Shul	I	Clark	D			Ros	36x6*	36x6†	Bud	Fir			
17	Exi			Del	Del	B-Li	B-Li 50	U	4	Spic	Math	A	Tim 1524	W	Tim Spec	F	4.6	19.7	Ros	36x6*	38x7	Bud				
18	Exi			Del	Del	B-Li	B-Li 50	U	4	Spic	Math	A	Tim 1524	W	Tim Spec	F	4.6	19.7	Ros	36x6*	36x6†	Bud				
19	Exi	3LXRE-25	6-185	Rm	Rm	B.B.	Own	U	4	Sn-Pe	Math	A	Own	W	Tim 6460	F	6.5	32.5	Gem	30x5*	34x7*	Smi	Fir			
20	Exi	3LXRE-25	6-185	Rm	Rm	B.B.	Det R 400	U	4	Sn-Pe	Math	A	Own	W	Tim 6560	F	6.75	39.8	Gem	32x6*	36x8*	Smi	Fir			
21	Wil	STRN27	12-90	NE	Own	Own	Own	U	4	Sned	Math	A	Tim 1523	W	Tim 6412	F	5.4	21.6	Ros	34x4	34x6					
22	Own		6-80	Own	Own	Own	Own	U	4	Own	Own	B	Own	B	Own	F	7.25	32.1	Own			Own	Opt			
23	Wil	STRN 6	6-190	AtK	Own	Own	Own	U	4	Spic	Per	B	Tim 1550	W	6511 G	F	5.4	21.6	Ros	36x6*	36x6†	Day	Fir			
24	Wil	STRN 6	6-190	AtK	Own	Own	Own	U	4	Spic	Det	A	Own	W	Tim 6560	F	6.29	29.29	Dod	33x4½*	36x6*	StM	Fir			
25	Exi	9318	12-50	NE	NE	Dod	Dod	U	3	UP	Det	A	Own	W	Own B-360	F	6.29	29.29	Dod	33x4½*	36x6*	StM	Fir			
26	Wil	SJRT28	12-104	LN	LN	B-Li	B-Li 51	N	4	ME	Mer	B	Shul 5550B	B	Wis	W	5.83	29.29	Ros	36x6	36x6†	Bud				
27	Wil	STRN 6	6-157	Wes	Rm	B.B.	B-Li	U	4	Sn-Sp	Shel	A	Shel D 370	W	Shel W 103	W	6.05	25.5	Woh	36x6*	36x6†	Bud				
28	Wil	STRN 6	6-157	Wes	Rm	B.B.	B-Li	U	4	Sn-Sp	Shel	A	Shel D 370	W	Shel W 21	W	6.05	25.5	Woh	36x6*	36x6†	Bud				
29	POL	613RHN	6-100	AuL	Mun	Mun	Mun	U	3	SS	SS	A	Shul 6108	I	Torb	D	6.3	25.2	CAS	32x4½*	32x4½*					
30	Exi		6-120	NE	NE	Full	B-Li	U	4	Spic	Math	B	Shul 6108	I	Clark	F	8	33	Jac	36x6*	36x6†	Ind	Fir			
31	Wil	SJRT 6	6-153	Rm	Rm	B-Li	B-Li 35	U	4	Spic	Math	A	Shul 610	R	Wis 60B	R	5.8	19.08	Ros	34x7*	34x7*	Whit	Gdy			
32	Exi	3XE-D	6	Bos	Bos	B-Li	B-Li 30	U	3	Sned	Shel	A	Sals	B	Sals	B	5.9	25	Gem	34x5*	34x5*	Bud	Fir			
33	Exi	3XE-D	6	Bos	Bos	B-Li	B-Li 30	U	3	Spic	Shel	A	Shel	B	Shel	B	7.6	31	Gem	36x6*	36x6*	Smi	Fir			
34	Exi		6-150	Dy	Dy	B.B.	Det	U	4	Spic	Tut	A	Shul 510	R	Wis	R	Opt	46	Lav	36x6*	40x8*	Bim	Fir			
35	Exi	6LXRE13	12-120	LN	LN	Own	Own	U	4	Spic	Mer	B	Own	F	Own	F	5.88	19.3	Own	32x6*	32x6*	Bud				
36	USL		6-120	AuL	AuL	B.B.	W.C.	U	4	Spic	Arm	A	Flu	R	Flu	F	Opt	37	Lav	33x5*	33x5†	Bud	Fir			
37	Wil		12	Wes	Wes	Full	Full GU 7	U	4	Spic	Det	B	Shul 610	R	Walk 25 A	F	7.66	37	Ros	36x6	40x8	StM	Fir			
38	Wil	SJR4	6-125	Bos	Bos	Det	Cott AU	U	4	Spic	Tut	A	Tim 1550	R	Wis 120 K	F	6.16	32.06	Ros	36x6*	36x6†	Ind	Fir			
39	Hob	6HTXR15A	6-140	AuL	Own	Det	B-Li 30	U	3	Pet	US	A	Tim 1250	B	Tim 5512	B	5.5	22	Ros	32x6	32x6	Own	Gdy			
40	Hob	6HTXR15A	6-140	Opt	Spl	B-Li	B-Li 51	U	4	Pet	US	A	Tim 1550	W	Tim 6410	W	6	32.1	Ros	34x5*	34x5†	Bud				
41	Hob	6HTXR15A	6-140	Opt	Spl	B-Li	B-Li 51	U	4	Pet	US	A	Tim 1550	W	Tim 6511	F	6	32.1	Ros	36x6*	36x6†	Bud				
42	GI	611	6-80	Wes	Wes	Full	Full SU 2	U	3	Tut	A	W	Flu 72BA80	B	Flu 72BA10	F	5.5	22	Lav	32x6*	32x6*	Whit	Fir			
43	GI	611	6-80	Wes	Wes	Full	Full SU 2	U	3	Tut	A	W	Conf 650	B	Flu 72BA10	F	4.9	20	Lav	32x6*	32x6*	Whit	Fir			
44	Exi		6-185	Rm	BB	Own	Cott RV	U	4	Spic	SS	A	Conf 650	R	Huck 85	F	5.3	28	Lav	36x6*	36x6†	Bud	Fir			
45	Exi	6MVE13	12180	NE	NE	B-Li	B-Li 60	U	4	Spic	Shel	A	Shul 650B	I	Atl LC-IR	D	7	28	Ros	34x6†	34x6†	Ind				
46	Wil	SJR4	6-111	NE	NE	Own	Own	U	3	Own	Pen	A	Own	S	Own	S	4.7	17.29	Own	33x5*	33x5*	Mot	Fir			
47	POL	613RHN	6-100	Rm	Rm	B-Li	B-Li 30	U	3	Spic	Det	A	Col 5000	B	Col 52000	F	5.13	21	Jac	30x5*	32x6	Nor	Fir			
48	POL	615 KPN	6-200	NE	NE	B-Li	B-Li	U	4	Spic	SS	A	Tim	W	Tim	F	7.75	31	Gem	36x5	36x5	Arc	Fir			
49	POL	615 KPN	12-300	NE	NE	B-Li	B-Li	U	4	Spic	SS	A	Tim	W	Tim	F	7.75	31	Gem	36x5	36x5	Arc	Fir			
50	Wil	SJRT 6	6-166	Rm	Rm	B.B.	B-Li 51	U	4	Opt	Shel	A	Tim 1544	W	Tim 6560	F	6.75	36.12	Ros	32x6*	32x6†	Opt	Fir			
51	Wil	SJRT 4	6-120	Rm	Rm	B-Li	B-Li 35	U	4	M-E	Shel	A	Shul 312	B	Eat 1500	B	6.14	20.2	Ros	30x5	32x6	Opt	Fir			
52	Gld	ASLR632	6-132	Bos	Bos	B-Li	B-Li 35	U	4	UM	Math	A	Tim 1452	W	Tim 6460	F	6	32	Ros	35x5*	35x5†	Bud	Fir			
53	Gld	ASLR632	6-132	Bos	Bos	B-Li	B-Li 50	U	4	Spic	Math	A	Tim 1544 B	W	Tim 6560	F	6	32	Ros	36x6*	36x6†	Bud	Fir			
54	Wil	SJR3	6	Rm	Rm	B-Li	B-Li 30	U	3	Pick	Own	B	Col 5000	B	Col 52000	F	5.87	21.9	Ros	34x5*	36x6*	Bim	Gdy			
55	Wil	SJAT-3	6-90	Rm	Rm	B-Li	B-Li 35	U	4	Pick	Own	B	Shel D 343	W	Shel W 103	W	8.6	46.3	Ros	34x5*	40x8*	Bim	Gdy			
56	Exi		6-150	NE	NE	B-Li	B-Li 51	U	4	Spic	Det	C	Shul 370	B	Clark 360	F	6.28	33.56	Gem	34x7*	34x7*	Whit	Gdy			
57	POL	SHC		LN	LN	Full	Full GU 7	U	4	UP	Math	B	Shul 650 B	R	Walk 25 A	F	6.96	33	Jac	38x7	42x9	Smi	Gdy			
58	Wes		6-120	Bos	Bos	B-Li	B-Li 30	U	3	Spic	Det	A	Shul 310	B	Col 52000	F	5.1	20.8	Lav	32x6	32x6	Whit	Fir			
59	POL	611KPN	6-120	Bos	Bos	Full	Full SU 2	U	3	Bld	Shel	A	Shul 310	B	Clark B	F	5.5	22	Lav	34x5*	36x6*	Sch	Fir			
60	POL	611 KPN	6-120																							

## ABBREVIATIONS

- LOCATION OF GEARSET:**  
 A—Amidships  
 J—Unit with jackshaft  
 R—Rear  
 U—Unit with engine
- UNIVERSAL:**  
 Acn—Acme  
 Arv—Arvae  
 Bld—Blood-Brothers  
 Det—Detroit  
 Hart—Hartford  
 KB—Kinsler-Bennett  
 MM—Mechanics  
 M-E—Merchant & Evans  
 Nor—Norwalk  
 Pet—Cleveland Universal  
 Pick—Pick  
 Snd—Snead  
 Spic—Spicer  
 Ster—Sterling  
 Ther—Thermoid  
 UM—Universal Machine  
 UP—Universal Products  
 Var—Varied
- SPRINGS:**  
 Am—Am. Auto Parts  
 Arm—Armstrong  
 Bea—Beams  
 Cham—Champion  
 Del—Delany  
 Det—Detroit  
 GC—Garden City  
 Har—Harvey  
 IC—Iron City

- Kal—Kalamazoo  
 Lah—Laher  
 Lig—Liggett  
 Mar—Maremont  
 Math—Mather  
 Mer—Merrill  
 Nat—National  
 Pen—Penn  
 Per—Perfection  
 Phil—Phila. Springs  
 P.S.—Point Spring Co.  
 Row—Rowland  
 Shel

# Manufacturers and Models Included in Specifications on Preceding Pages

Also Manufacturers of Busses as Listed in the Bus Table

## Truck Manufacturers Who Distribute Nationally

Note: This grouping of the manufacturers has been made from the best information at hand. Manufacturers are invited to furnish us with further information in relation to their distribution which will enable us to make this grouping as correct as possible.

Acme—1, 1½, 2, 3, 3½, 4½, 6½—Acme Motor Truck Co., Cadillac, Mich.  
 American-LaFrance—¾, 2½, 3½, 5—American-LaFrance Fire Engine Co., Inc., Elmira, N. Y.  
 Armleder—1, 1½, 2½, 3½—O. Armleder Motor Truck Co., Cincinnati, Ohio.  
 Atterbury—1½, 2½, 3½, 5—Atterbury Motor Car Co., Buffalo, N. Y.  
 Autocar—1, 1¼, 1½, 2, 2½, 3, 4, 5 to 7—Autocar Co., Ardmore, Pa.  
 Bessemer—1, 1½, 2½, 4—Bessemer Motor Truck Co., Grove City, Pa.  
 Bethlehem—1, 2, 3—Bethlehem Motors Corp., Allentown, Pa.  
 Brockway—¾, 1½, 2½, 3½, 5—Brockway Motor Truck Co., Cortland, N. Y.  
 C. T.—1, 1½, 2, 3½, 5—Commercial Truck Co., Philadelphia, Pa.  
 Chevrolet—½, 1—Chevrolet Motor Truck Co. of Mich., Flint, Mich.  
 Clydesdale—1¼, 2½, 3½, 5, 7—Clydesdale Motor Truck Co., Clyde, Ohio.  
 Commerce—¾, 1½, 2½—Commerce Motor Truck Co., Ypsilanti, Mich.  
 Day-Elder—1, 1½, 2, 2½, 3½, 5—Day-Elder Motors Corp., Newark, N. J.  
 Defiance—1¼, 1½, 2, 3—Defiance Motor Truck Co., Defiance, Ohio.  
 Diamond T—¾, 1¼, 1½, 2½, 3½, 5—Diamond T Motor Car Co., Chicago, Ill.  
 Dodge—¾—Dodge Bros., Detroit, Mich.  
 Duplex—1, 1½, 2, 3½—Duplex Truck Co., Lansing, Mich.  
 F. W. D.—3—Four-Wheel Drive Auto Co., Clintonville, Wis.  
 Fageol—2, 3, 4, 5—Fageol Motors Co., Oakland, Cal.  
 Federal—¾, 1, 1½, 2, 3½, 5, T.T.—Federal Motor Truck Co., Detroit, Mich.  
 Fifth Avenue—Fifth Avenue Coach Co., New York City.  
 Ford—1—Ford Motor Co., Highland Park, Mich.  
 G. M. C.—1, 2, 3½, 5—General Motors Truck Co., Pontiac, Mich.  
 Garford—1, 1½, 2½, 4, 5, 7½—Garford Motor Truck Co., Lima, Ohio.  
 Gary—1, 2, 2½, 3½, 5—Gary Motor Corp., Gary, Ind.  
 Graham—1, 1½—Graham Brothers, Evansville, Ind.  
 Gramm-Bernstein—1, 1¼, 1½, 2, 2½, 3½, 4, 5—Gramm-Bernstein Motor Truck Co., Lima, Ohio.  
 Gray—¾, 1—Gray Motor Corp., Detroit, Mich.  
 Indiana—1, 1½, 2, 2½, 3½, 5—Indiana Truck Corp., Marion, Ind.  
 International—¾, 1, 1½, 2, 2½, 3, 5—International Harvester Co. of America, Chicago, Ill.  
 Kelland—½, ¾, 1—Kelland Motor Car Co., Newark, N. J.  
 Kelly-Springfield—1½, 2½, 3½, 6—Kelly-Springfield Motor Truck Co., Springfield, Ohio.  
 Kissel—1, 1½, 2½, 4—Kissel Motor Car Co., Hartford, Wis.  
 Krebs—1, 1½, 2½, 3½—Krebs Motor Truck Co., Bellevue, Ohio.  
 Lansden—¾, 1, 2, 3½, 5, 6—Lansden Company, Danbury, Conn.  
 Larrabee-Deyo—1, 1½, 2½, 3½—Larrabee-Deyo Motor Truck Co., Inc., Binghamton, N. Y.  
 Maccar—1¼, 1½, 2, 3, 4, 5—Maccar Truck Co., Scranton, Pa.  
 Mack—1½, 2, 2½, 3½, 5, 6½, 7½, T.T.—Mack Motors, Inc., New York, N. Y.  
 Mason Road King—1½—Durant Motors, Inc., Long Island City, N. Y.  
 Maxwell—1½—Maxwell Motor Co., Inc., Detroit, Mich.  
 Menominee—1, 1¼, 1½, 2, 3½, 5—Menominee Motor Truck Co., Clintonville, Wis.  
 Nash—1, 2—Nash Motors Co., Kenosha, Wis.  
 Northway—2, 3½—Northway Motors Corp., Natick, Mass.  
 O. B.—1, 2, 3, 5—O. B. Electric Vehicles, Inc., Long Island City, N. Y.  
 Oshkosh—2, 2½—Oshkosh Motor Truck Mfg. Co., Oshkosh, Wis.  
 Overland—½—Willys-Overland Co., Toledo, Ohio.  
 Patriot—1, 2, 3—Patriot Mfg. Co., Havelock, Neb.  
 Penn—1, 2—Penn Motors Corp., Philadelphia, Pa.  
 Pierce-Arrow—2, 3, 4, 5, 6, 7½, T.T.—Pierce-Arrow Motor Car Co., Buffalo, N. Y.  
 Reo—1¼—Reo Motor Car Co., Lansing, Mich.  
 Republic—1¼, 2, 3, 4—Republic Motor Truck Co., Inc., Alma, Mich.  
 Rowe—2, 2½, 3, 4, 5—Rowe Motor Mfg. Co., Lancaster, Pa.  
 Ruggles—¾, 1¼, 2, 2½—Ruggles Motor Truck Co., Saginaw, Mich.  
 Schacht—1½, 2, 3, 4, 5—G. A. Schacht Motor Truck Co., Cincinnati, Ohio.  
 Selden—1½, 2½, 3½, 5—Selden Truck Corp., Div. of Industrial Motor Corp., Rochester, N. Y.  
 Service—1¼, 1½, 3, 3½, 4—Service Motor Truck Co., Wabash, Ind.  
 Signal—1, 1½, 2½, 3½, 5—Signal Truck Corp., Detroit, Mich.  
 Standard—1¼, 1½, 2½, 3½, 5—Standard Motor Truck Co., Detroit, Mich.  
 Sterling—1½, 2, 2½, 3½, 5, 7½—Sterling Motor Truck Co., Milwaukee, Wis.  
 Stewart—1, 1¼, 1½, 2½, 3½—Stewart Motor Corp., Buffalo, N. Y.  
 Transport—1, 1½, 2, 3½, 5—Transport Truck Co., Mt. Pleasant, Mich.  
 Traylor—1½, 2, 3, 5—Traylor Eng. & Mfg. Co., Cornwells, Pa.  
 United—1, 1½, 2, 2½, 3, 3½—United Motor Products Co., Grand Rapids, Mich.  
 Walker—½, 1, 2, 3½, 5—Walker Vehicle Co., Chicago, Ill.  
 Ward—750 lb. to 7 Ton—Ward Motor Vehicle Co., Mt. Vernon, N. Y.  
 White—¾, 2, 3½, 5—White Co., Cleveland, Ohio.  
 Yellow Cab—¾, 1¼—Yellow Cab Mfg. Co., Chicago, Ill.

## Truck Manufacturers Who Distribute Locally

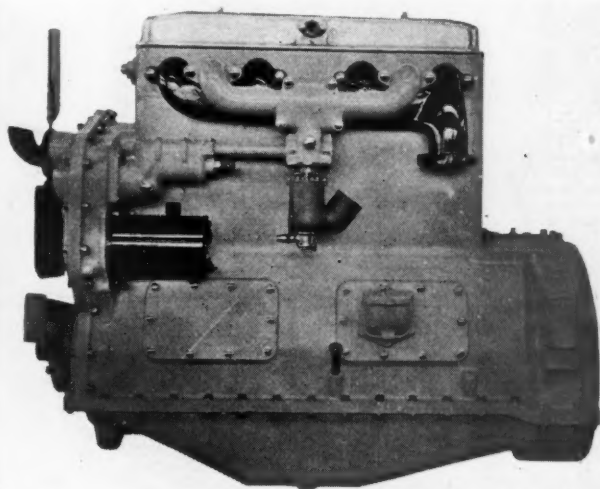
Acason—2, 3, 4, 5—The Acason Corp., Detroit, Mich.  
 Ace—1½, 3—American Motor Truck Co., Newark, Ohio (receiver).  
 American—2½, 4, 5—American Motor Truck & Tractor Co., Portland, Conn.  
 Available—1½, 2, 2½, 3½, 5—Available Truck Co., Chicago, Ill.  
 Betz—1, 2½—Betz Motor Truck Co., Hammond, Ind.  
 Brinton—1½, 2½—Brinton Motor Truck Co., Philadelphia, Pa.  
 Buffalo—2, 3—Buffalo Truck and Tractor Corp., Clarence, N. Y. (receiver).  
 Casco—1—Casco Motors, Inc., Sanford, Me.  
 Chicago—1½, 2½, 3½, 5—Chicago Motor Truck, Inc., Chicago, Ill.  
 Clinton—1¼, 2, 3, 4, 5 to 7—Clinton Motors Corp., Reading, Pa.  
 Columbia—1½, 2½, 3—Columbia Motor Truck Co., Pontiac, Mich.  
 Concord—1, 2, 2½, 3—Abbott-Downing Truck & Body Co., Concord, N. H.  
 Corbitt—¾, 1, 1½, 2, 2½, 3, 4, 5—Corbitt Motor Truck Co., Henderson, N. C.  
 Dependable—1¼, 2, 2½, 3, 3½—Dependable Truck & Tractor Co., East St. Louis, Ill.  
 Diehl—1, 1½—Diehl Motor Truck Works, Philadelphia, Pa.  
 Dixon—1½, 2, 2½, 3½—Dixon Motor Truck Co., Altoona, Pa.  
 D-Olt—1, 1½, 2, 2½, 5—D-Olt Motor Truck Co., Inc., Long Island City, N. Y.  
 Dorris—1, 2, 3½—Dorris Motor Car Co., St. Louis, Mo.  
 Eagle—1¼, 2—Eagle Motor Truck Corp., St. Louis, Mo.  
 Fulton—1, 2—Fulton Motors Corp., Farmingham, N. Y.  
 G. W. W.—1½—Wilson Truck Mfg. Co., Henderson, Iowa.  
 Gotfredson—1, 1½, 2½, 4, 5—Gotfredson Truck Corp., Ltd., Walkerville, Ont.  
 Grass Premier—1, 1½, 2, 2½, 3½—Grass Premier Truck Co., Sauk City, Wis.  
 Guilder—1½, 2, 3—Guilder Engineering Co., Poughkeepsie, N. Y.  
 Harvey—2, 2½, 3½, 6, 10—Harvey Motor Truck Co., Harvey, Ill.  
 Hawkeye—1, 1½, 2½, 3½—Hawkeye Truck Co., Sioux City, Iowa.  
 Hug—1½, 2—The Hug Co., Highland, Ill.  
 Hurlburt—1½, 2½, 3½, 5, 7—Harrisburg Mfg. & Boiler Co., Harrisburg, Pa.  
 Independent—1, 1½, 2½—Independent Motor Truck Co., Inc., Davenport, Ia.  
 Jumbo—1½, 2, 2½, 3, 3½, 5—Nelson Brothers Co., Saginaw, Mich.  
 Kalamazoo—Kalamazoo Motor Corp., Kalamazoo, Mich.  
 Kankakee—2½—Kankakee Motor Truck Co., Kankakee, Ill.  
 Kearns—1, 1½, 2, 3½, 5—Kearns-Dughe Motors Co., Danville, Pa.  
 Kenworth—1½, 2½, 3½—Kenworth Motor Truck Corp., Seattle, Wash.  
 Kimball—2, 2½, 4, 5—Kimball Motors Corp., Los Angeles, Cal.  
 King Zeidler—¾, 1, 1½, 2½, 3½, 5—King Zeidler Co., Chicago, Ill.  
 Kleiber—1½, 2½, 3½, 5—Kleiber Motor Truck Co., San Francisco, Cal.  
 Lange—2½, 3½—Lange Motor Truck Co., Pittsburgh, Pa.  
 Luedinghaus—1, 1½, 2, 3½, 5, 7—Luedinghaus-Espenschied Wagon Co., St. Louis, Mo.  
 Master—1¼, 1½, 2½, 3½, 5, 5½—Master Motors Corp., Chicago, Ill.  
 Moreland—1, 1½, 2, 3, 5—Moreland Motor Truck Co., Burbank, Cal.  
 National—1, 1½, 2½, 3½, 5—National Steel Car Corp., Ltd., Hamilton, Ont., Canada.  
 Nelson-LeMoon—1, 1½, 2½, 3½, 5—Nelson & LeMoon, Chicago, Ill.  
 Netco—2, 2½, 3—New England Truck Co., Fitchburg, Mass.  
 Noble—1, 1½, 2, 2½, 3½—Noble Motor Truck Co., Kendallville, Ind.  
 Ogden—1, 1½, 2½, 3½, 5—Ogden Truck Co., Chicago, Ill.  
 Old Reliable—2½, 3½, 5, 6—Old Reliable Motor Truck Co., Chicago, Ill.  
 Olympic—2½—Olympic Motor Truck Co., Tacoma, Wash.  
 Oneida—2, 2½, 3½, 5—Oneida Motor Truck Co., Green Bay, Wis.  
 Parker—1, 1½, 3, 3½, 5—Parker Motor Truck Co., Milwaukee, Wis.  
 Perfection—¾, 1¼, 2, 3, 4½, 5—Perfection Truck Co., Minneapolis, Minn.  
 Philadelphia Motor Coach—Phila. Motor Coach Co., Phila., Pa.  
 Pioneer—1—Pioneer Truck Co., Chicago, Ill.  
 Pittsburgher—2, 3, 3½—Pittsburgh Truck Mfg. Co., Pittsburgh, Pa.  
 Power—1½, 2½, 3½—Power Truck & Tractor Co., St. Louis, Mo.  
 Rainier—¾, 1, 1½, 2, 2½, 3½, 5—Rainier Motor Corp., Long Island City, N. Y.  
 Reynolds—2, 3—Reynolds Truck Co., Mount Clemens, Mich.  
 Sandow—1, 1½, 2, 2½, 3½, 5—Moses & Morris Motors Corp., Chicago Heights, Ill.  
 Sanford—1, 1½, 2½, 3½, 5—Sanford Motor Co., Syracuse, N. Y.  
 Steinmetz—Steinmetz Electric Motor Car Corp., Arlington, Baltimore, Md.  
 Stoughton—1¼, 1½, 2, 3—Stoughton Wagon Co., Stoughton, Wis.  
 Super Truck—2½, 5—O'Connell Motor Truck Co., Waukegan, Ill.  
 Traffic—1½, 2, 3—Traffic Motor Truck Corp., St. Louis, Mo.  
 Triangle—1, 1½, 2, 2½—Triangle Motor Truck Co., St. Johns, Mich.  
 Twin City—2, 2½—Minneapolis Steel & Machinery Co., Minneapolis, Minn.  
 Ultimate—1½, 2, 2½, 3, 5—Vreeland Motor Co., Inc., Newark, N. J.  
 Union—2½, 4—Union Motor Truck Co., Bay City, Mich.  
 U. S.—1¼, 1½, 2½, 3, 4, 5—United States Motor Truck Co., Cincinnati, Ohio.  
 Velie—1½—Velie Motors Corp., Moline, Ill.  
 Wachusett—1, 1½, 2, 2½—Wachusett Motors, Inc., Fitchburg, Mass.  
 Walker Johnson—1, 2½—Walker Johnson Truck Co., Woburn, Mass.  
 Walter—2, 2½, 5, T.T.—Walter Truck Co., New York, N. Y.  
 Ward La France—2½, 3½, 5—Walker Motors, Inc., New York, N. Y.  
 Wichita—1, 2, 3, 4—Wichita Falls Motor Co., Wichita Falls, Texas.  
 Wilcox—1, 1½, 2½, 3½, 5—Wilcox Trux, Inc., Minneapolis, Minn.  
 Witt-Will—1½, 2, 2½, 3—Witt-Will Co., Inc., Washington, D. C.



## The W. S. M. Model C4 Bus Engine

The Wellman-Seaver-Morgan Co., Cleveland, Ohio, for the last four years has been building an engine  $4\frac{3}{4} \times 6$ -in. size for driving all kinds of heavy industrial machinery including heavy trucks, locomotives, rail cars, etc.

The demand for powerful, high speed engines to handle motor busses, fire engine pumpers, etc., has made it necessary to bring out a modified design. This has been accomplished by the use of aluminum to reduce total weight. The oil pan, front gear cover, connecting rods and pistons have been lightened to the extent of 125 lb. without in any way lessening the ability of the engine to stand up under the hardest service.



View of Left Side of New W. S. M. Model C4 Bus Engine.

carried, acts as a breather for the engine. All oil vapor and moisture arising from the crank case is carried to the carburetor where it enters with the ingoing charge of air and fuel. In this way waste vapor is utilized and turned into power; at the same time the engine is dust proof, no dirt being able to get into the engine except that which passes through the carburetor with the air and for that an air cleaner is recommended.

Overhead valves are used, silchrome being used in both intake and exhaust. Rocker arm shaft is hollow, oil is pumped into it and to each rocker arm bearing, thence to the ball and socket joints at the tops of the push rods.

The lubrication system is the full pressure type, the oil being forced by a gear pump in the sump to all crankshaft, water pump, lower and upper connecting rod bearings, front gears and valve mechanism as above described.

In fact with the lighter reciprocating parts the engine has been materially increased and the power output raised considerably.

The engine is of the four-cylinder type,  $4\frac{3}{4} \times 6$  in., crankcase and cylinder block cast integral for the purpose of securing rigidity.

The cylinders are made in the form of sleeves and fit into seats machined in the cylinder block. The sleeves are ground on the inside and at the top and bottom on the outside where the joints are effected. The cylinder head gasket forms a seal at the top while a pure rubber gasket fitted into a groove in the case around the bottom of the sleeve seals it at the bottom; the evenly-machined cylinder walls allow for even expansion and contraction at all times, provides for even efficient cooling in all parts of the cylinder walls under all load conditions.

Combustion chambers are completely machined, thus providing uniform compression space in each of the four cylinders.

The crank and cam shaft are made of chrome-nickel steel, connecting rods of forged aluminum, pistons aluminum, with three  $\frac{1}{4}$ -in. rings.

The fan is of the four-blade type, gear driven.

Where necessary a governor is supplied, built into the engine. The tube leading from the governor to the intake throttle and in which the throttle control rod is

## Himico Replacement Power Plant for Fords

Hinkley Motors, Inc., Detroit, Mich., just announced a replacement power plant for Ford cars and trucks, which, although in process of development for sometime, has just been shown officially for the first time at the Good Roads Show. This installation replaces the original Ford motor in the Ford chassis without requiring any mechanical changes and very little time or skill to make the change.

The complete Himico replacement unit comprises the Ford engine with the Himico improved high velocity cylinder head, light weight pistons, step-cut piston rings, hot spot manifold; plate clutch, operating in oil; three speed sliding gear transmission with standard S. A. E. gearshift and an enclosed transmission brake with large area band working on propeller shaft, adjustable at floor line.

The owner desiring to replace his present Ford engine with a Himico unit returns the original Ford starter type of engine either to the Hinkley factory or he can have the work done through his serv-

ice station or Ford dealer. The owner keeps the carburetor, generator, starting motor, plugs, wiring and magneto plug and installs them on the new unit, but the balance of the engine is sent to Hinkley. The old engine to be used on another Himico unit is completely re-manufactured under improved factory methods.

The accompanying illustration gives a general idea of the appearance of this unit. It eliminates any structural change in the Ford chassis and the ball socket on the Himico outfit receives the propeller shaft of the original equipment with no change or alteration.

The Himico clutch is a single plate design with Raybestos disks insuring a positive, flexible and non-grabbing operation. It is adjustable by removing a plug in transmission case and making adjustment with a socket wrench.

The transmission is carefully designed, three speeds forward, with a single plate clutch mounted on the flywheel. Chrome nickel alloy steel gears, with a generous tooth face width are used throughout. The main line drive is mounted entirely in annular ball bearings, and the countershaft drive is carried on phosphor bronze bushings running on case hardened shafts.

This outfit is provided with a propeller shaft brake as a service brake. The size of the band is the same as on the standard Ford design. Adjustment is made by turning a wing nut accessibly located just under the floor boards.

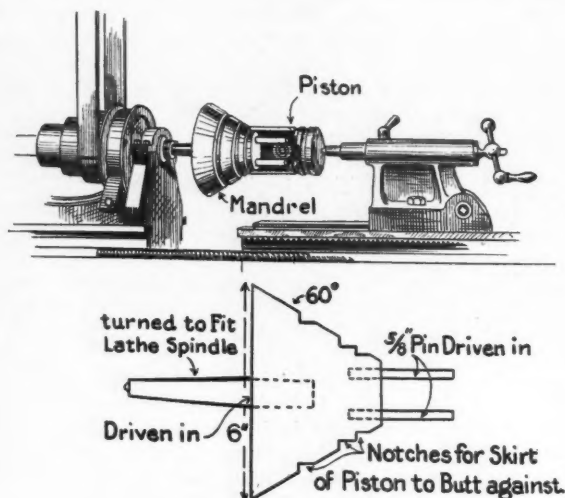
Attention is called to the fact that the transmission is built in as an integral part of the Ford engine. For severe hauling conditions an especially designed auxiliary low speed gear is provided. It provides a final drive ratio of 40 to 1 on a 7.25 to 1 rear axle equipped truck.

The complete Himico replacement unit as illustrated ready to install lists at \$165. The transmission, with clutch and brake mounted with oil pan with standard Ford flywheel, ready to install, lists at \$137. The hot-spot manifold and high velocity cylinder head can be furnished as individual equipment if desired at \$6.30 and \$8.85 respectively, F. O. B. Ecorse, Michigan. War tax extra.



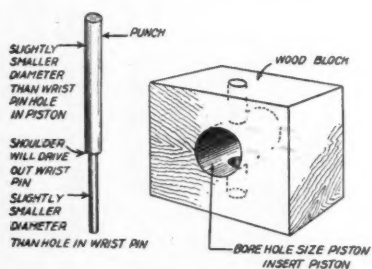
The New Himico Replacement Power Plant.

# SHOP HINTS



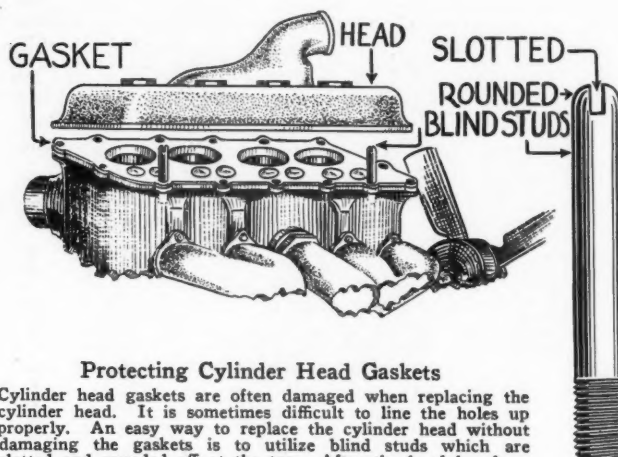
**Piston Mandrel**

A very useful piston mandrel can be easily made along the lines suggested by the accompanying sketch. This will prove useful for turning, grinding or grooving pistons. By cutting notches in the mandrel to fit the inside of the piston skirt, any size piston can be machined. Two pins are driven in the mandrel to straddle an old wrist pin.—F. J. Wilhelm.



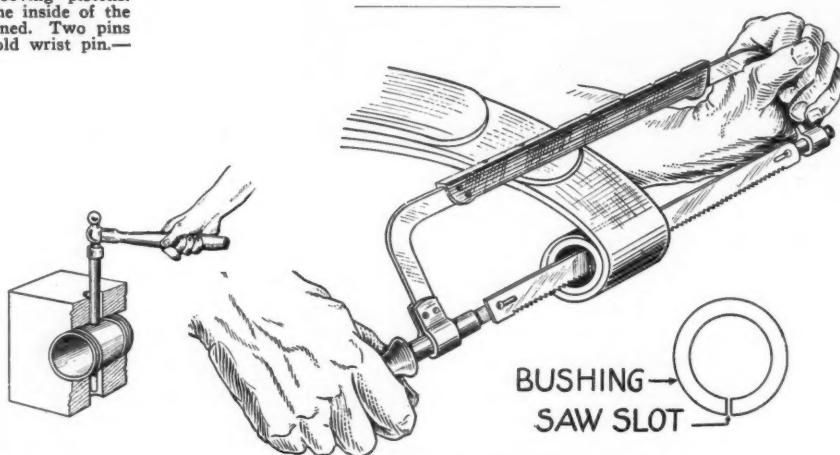
**To Remove Wrist Pins**

When disassembling connecting rods and wrist pins from pistons, they are sometimes found to be very tight and have to be driven out. To prevent the piston from being marred or sprung out of shape, a wood block can be utilized. The hole in the block should be made large enough to take care of the average size piston.—F. J. W.



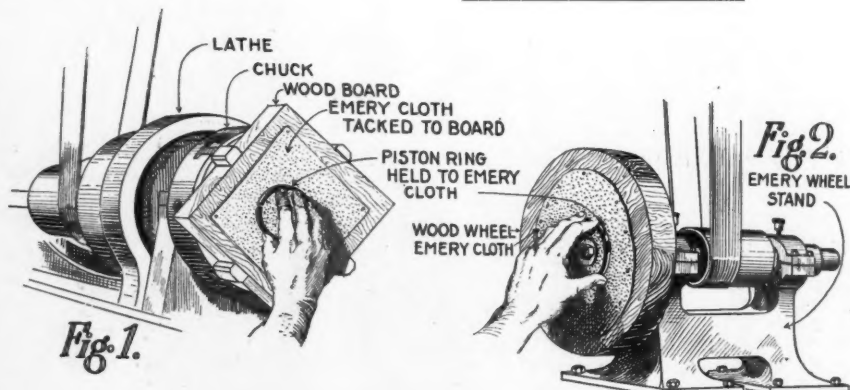
**Protecting Cylinder Head Gaskets**

Cylinder head gaskets are often damaged when replacing the cylinder head. It is sometimes difficult to line the holes up properly. An easy way to replace the cylinder head without damaging the gaskets is to utilize blind studs which are slotted and rounded off at the top. After the head has been put in place, the studs can be easily screwed out with a screw-driver. Two studs are enough for any cylinder and they should be used at opposite corners of the engine block.—F. J. W.



**Removing Frozen Bushings**

Old and worn spring bushings are sometimes very difficult to remove and will not budge even with hammer or bushing puller. By using a hack saw and splitting the bushing, the latter can be hammered easily. If the bushing is very small, the blade can be ground down on back to fit.—F. J. W.



**When Fitting Piston Rings**

The usual method of dressing down piston rings is to rub them against a sheet of emery paper laid on a flat surface. A much quicker and satisfactory way is to fasten emery paper to a board which in turn is held by the lathe chuck as in Figure 1. An emery wheel stand can also be used for the same purpose, as in Figure 2.—F. J. W.





## Put this wheel to any test

**B**UILT from a rolled steel I-beam, the Bethlehem Wheel possesses service qualities that distinguish it from any other truck wheel. These qualities appear in the better and more economical service that the truck gives. And they can be proved by tests.

Put the Bethlehem Wheel to any test. Test its remarkable strength. Test its durability. See how well it stands up under repeated blows that would smash a wheel of lesser stamina.

And test its resiliency—its ability to “give” under jolts, and to help absorb the

shocks of travel over cobblestones, car tracks, badly paved streets. The resiliency of the Bethlehem Wheel adds to tire life. It lessens wear and tear on the whole chassis, and particularly on those vital, unsprung parts—rear axle, differential, drive shaft—which are not protected by the springs.

Road and laboratory tests on the Bethlehem Wheel have been conducted by truck builders and by ourselves. The results of these tests are convincing evidence to what an extent the Bethlehem Wheel possesses the qualities essential to a good truck wheel.

**BETHLEHEM STEEL COMPANY, General Offices: BETHLEHEM, PA.**

*Sales Offices in the Following Cities:*

New York	Boston	Philadelphia	Baltimore	Washington	Atlanta	Buffalo	Pittsburgh
Cincinnati		Cleveland	Detroit	Chicago	St. Louis	San Francisco	

# BETHLEHEM

## ROLLED STEEL TRUCK WHEELS

# The Truck in the Live-Stock Industry

Farmers and Ranchers Demand Speed. Live-Stock Transportation Has Been Revolutionized by the Use of Trucks

By JACK LEE

**T**HE commercial car as an economical and efficient transportation unit is an established and accepted fact among the farmers of Iowa and Nebraska. Dealers of the region should find this live-stock field a fertile one. As a matter of fact the dealer in selling the live-stock farmer, will not only be making dollars for himself, but will be helping the stock producer to market his stock more rapidly by reducing the distance to his market as well. Besides, he will be performing a general economic good by aiding in the increase of farm products of all kinds.

There are many points emphatically in favor of the truck for the transportation of live-stock to market, the most salient being the condition that prevails at the Omaha stockyards where nearly 1,000,000 cattle, hogs, and sheep are being marketed annually by auto truck.

In the first nine months of the present year 540,589 head of live-stock were brought to the Omaha market in trucks. They were divided as follows: 269,663 hogs; 235,857 sheep and 35,069 cattle. For the same period in 1922 the following figures prevailed: 369,302 head divided as follows: 200,874 hogs; 139,791 sheep, 28,637 cattle. July of the present year was the banner month with 39,560 head of hogs alone. With the present average keeping up through the year the total receipts will be close to 1,000,000 head, a convincing argument that the truck is needed and wanted in the stock transportation business.

Officials of the Union Stockyards Company, the governing body of the stockyards have recognized the importance of the new mode of transportation and have begun the erection of special docks where trucks may be unloaded in a few moments. There will be enough docks to handle a large number of trucks in a very short time.

Until trucks became so numerous at the market

little thought was given them. It is a common sight now on a good market day, to see a line of trucks a mile long, winding like a huge snake around the Exchange building and yards, each truck awaiting its turn at the unloading chute. As quickly as trucks are unloaded others take their places while trucks arriving late fall in at the end of the line keeping the mile long line intact until near noon.

With the new facilities both the unloading and the transaction of business will be more rapid. This will still further encourage the trucking of stock to the market.

## Good Roads Stimulated Truck Usage

Another strong point tending to make truck usage still more popular with the stock producer is the program of good roads which is being carried out to the letter in Nebraska and Iowa. Nebraska spends \$12,000,000 annually in the maintenance and building of its roads. Iowa spends as much, and on certain roads more. There is a network of good roads, many of them paved and graveled, connecting with more than 80 miles of paved country roads leading into Omaha, the converging point of thirteen state and interstate highways.

In former days roads in spring and fall

were so muddy as to be almost impassable while in summer dust kicked up by the moving cattle worked great damage on the herd. Today mud and dust in transport are negligible.

When the Omaha stockyards were established in the early '80s many of the rich cattle lands of the west were without railroad facilities. This entailed days of driving to the nearest railroad; sleepless and anxious hours in loading the stock and tedious hours on the road. Even after arrival at the market there were still hours of hard work before the cattle could be unloaded and yarded. Heavy losses were also suffered by death and shrinkage enroute.

With increased railroad facilities driving long distances to railroads was practically eliminated but smaller ranchers and producers faced a serious problem in that they did not always have adequate stock to ship to make the use of special cattle trains or cars practical. Consequently several ranchers had to ship together to get the proper transportation facilities.

The advent of the truck was a great boom to those producers having only a few head of cattle. Today these producers are enabled to market when ready, making the producers independent of the railroads.

The truck has eliminated the dreary work of loading and unloading stock at the railroad yards and the anxiety and fear of accident to shipments. A few minutes in the farm yard suffices to load the truck with hogs, sheep or cattle and the good roads of Iowa and Nebraska permit a safe journey to market at almost any season of the year.

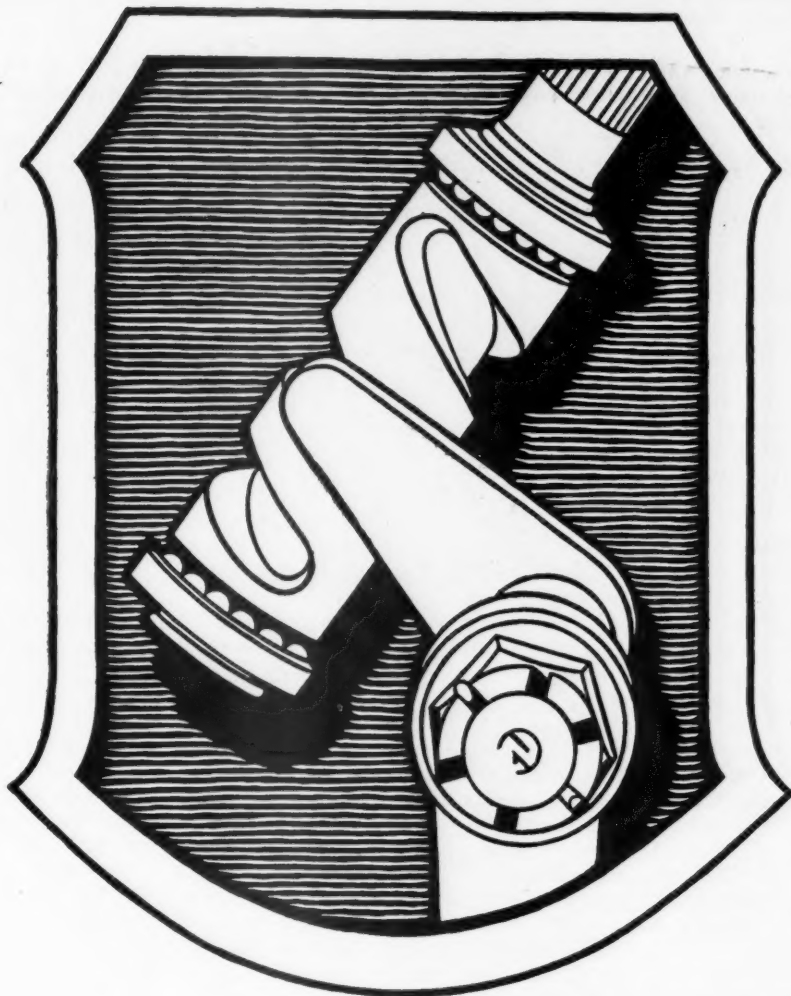
Shipping within a fifty mile radius of Omaha has practically been revolutionized by the use of trucks as they have proved more efficient in the short haul than railroads. The remarkable increase in livestock receipts from this radius is explained because of



Mingling of the Old and New

Motor trucks greatly outnumber horse drawn vehicles. The end of the truck line extends around the livestock exchange building





## LEVERAGE GIVES CONTROL

**S**TEERING of motor vehicles is revolutionized by the Ross Cam and Lever Steering Gear. When you turn the steering wheel, you rotate the cam. The cam, in turn, actuates the lever—where your strength is enormously increased as it passes into the steering arm. No wonder Ross steering is easy! Ross leverage produces this remarkable result.

But this is not all. The cam and lever, which transmit energy downward, likewise serve as a barrier to the jars, jerks and jolts of the road, as they attempt to travel back to the steering wheel. Road-shock practically vanishes. And, the unique variable pitch of the cam adds still further to your ease and control, both on turns and straightaways. Ross means absolute confidence in steering. Write for full information today.

### THE NEW WAY OF STEERING

ROSS GEAR AND TOOL COMPANY, 760 Heath Street, Lafayette, Indiana

**ROSS**  
**CAM and LEVER**  **STEERING GEARS**

**EASIER STEERING LESS ROAD SHOCK**

the farmers' increased ability to ship to the market at will.

The truck has stimulated business that was formerly considered very undesirable—short haul business. Then, too, in the old days, producers nearly always accompanied their stock to market. In many instances stock is now shipped on the regular truck lines and the farmer is spared the trip to market.

Sixty thousand head of live-stock are being brought every month to the Omaha Live-stock market, the second largest market in the world, by motor truck. Trucks loaded with hogs, sheep, cattle and horses come from distances ranging from 10 to 150 miles, and business that formerly took from one to three days to transact is today completed in a comparatively short time.

#### Trucks Adopted Unanimously

That the truck has come to stay is proved by the steady growth of this mode of transportation in the past five years. Live-stock was brought to market by truck as early as ten years ago but this mode of transportation did not become so universal until in recent years when trucks became more efficient and economical for commercial purposes. Seeing the advantages of trucks over railroads and the old methods of driving stock to market on the hoof the ranchers and farmers of Nebraska and Iowa have gradually adopted this method of transportation until now a truck on the farm has come to be a necessity.

The vogue of trucking stock has become so much in demand as to encourage private transporting companies, which have established regular routes. The trucks of these companies make calls at stated intervals all along the line.

Trucks begin arriving at the stockyards at 3.30 and 4 in the morning continuing until about 7.30. Practically every known make ranging from one to ten-ton capacity is represented. Many trucks are "double deckers" carrying a load of hogs on one deck and a load of sheep on the other.

The trucking of sheep and hogs to market is of unusual practicability because of the great demand for these animals at the market. Omaha is the first feeder sheep market of the world and the second largest sheep market in the world



**One of the Big Trucks Making Daily Trips to Market**

It has been especially equipped for stock transportation. A weather-tight cab protects the driver from bad weather

handling 2,532,787 head in 1922. Omaha is the third hog market receiving 2,839,382 last year. Omaha is the second largest packing center in the world and the ten big plants utilize more than 50 per cent of the hogs received at the yards for packing purposes. As a consequence good hogs and sheep can be sold at all times and these classes of stock are ideal for truck marketing. A farmer having a few marketable head can load them into his truck and haul them to market thereby tiding over temporary financial embarrassment by obtaining some ready cash.

#### Sales Outlet for Trucks

That these states are fertile fields for the merchandising of trucks is easily seen after a few minutes with the latest figures issued by the National Automobile Chamber of Commerce. Iowa is second in per capita ownership with 500,158 passenger and commercial vehicles. Nebraska is third with 256,654 or a vehicle for every 6.1 persons. A goodly number of these vehicles are on farms in both states and any farmer who can buy an automobile is not broke.

The continual wail that the farmer is broke and unable to pay for what he needs is, as expressed in the vernacular, "bunk," and western farmers are getting tired of having it drummed into their ears and set before their eyes on every hand by pollyanna editors, ill-informed cartoonists and office seeking "dirt farmers," fighting the farmer's "battles" to get a few votes.

Iowa and Nebraska farmers are getting more for

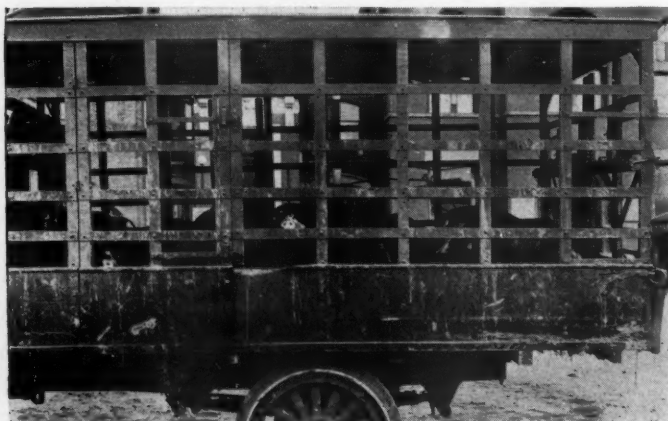
their corn than at any time in the past ten years. Wheat is comparatively low in price now but neither state lays any claim to being a great wheat producer; therefore the majority are not worried over the wheat situation. Their great productions are corn and live-stock and both are bringing excellent prices on the market. When these products are low the Nebraska and Iowa farmers have good reason to worry. But the farmers of these two states are in excellent condition and are being further sustained by their increased dairying activities. The poultry and eggs of Nebraska alone are worth more than the gold production of Colorado.

Any manufacturer or interested person wishing to challenge these statements should communicate with Ex-Governor S. R. McKelvie, editor of the "Nebraska Farmer" at Lincoln. There is absolutely nothing to hinder increased truck sales on Nebraska and Iowa farms if the truck is efficient and if its price is reasonable.

Among the trucks that come to market are many makeshift home-made affairs that farmers have built at home. Imitation is always a favorable tendency. It shows a receptive mood on the part of the farmer and if he can be shown that a regularly manufactured truck can be placed on his farm almost as cheaply as his home-made one, which is a continual drain on his pocketbook by reason of its costly upkeep, he will buy.

#### Serves Broad Utility

Trucks are used not only for the transportation of livestock to market but for moving other farm products. Omaha being the largest butter producing center in the world, a large fleet of trucks make daily calls on farmers within a large radius of Omaha collecting cream for the Omaha creameries. Any farm product can be transported to market by auto truck and the sales possibilities seem to be unlimited.



**Load of Hogs Destined for Stockyards, Omaha, Neb.**



# ACME

## *"Acme Franchise is Wonderful"*

CHARLES C. KIEFER, Pittsburgh

In the same letter containing the above statement, Mr. Kiefer, Acme dealer at Pittsburgh, Pa., says: "The Acme Motor Truck Company has always been eager to help us out of difficult situations. Their co-operation with their dealers has no equal. The profit we have derived from the sale of Acme Trucks has proven that an investment of this kind is bound to bring good results."

Acme—The Truck of Proved Units—is acknowledged a profit-maker for both dealer and owner.

Its many distinctive features, great reserve power, ease of operation, durability and exceptional freedom from repair work provides the dealer with a quick-selling and a constant-selling truck.

Send for actual records of Acme's dependable and unusual performance. Learn of Acme superiority.

If your territory is now open—write, phone or wire for our new, exclusive and profitable Sales Franchise.

### **Acme Motor Truck Company**

528 Mitchell Street, Cadillac, Mich.

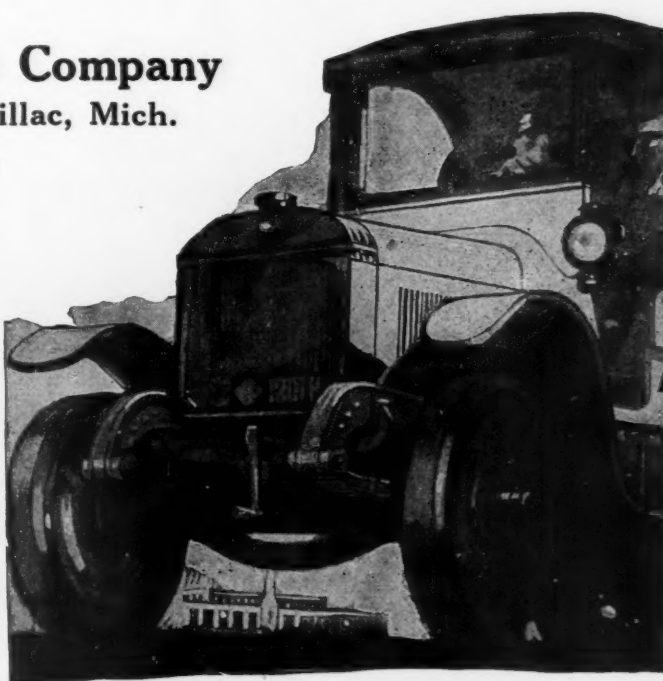
#### **The Truck That Moved a Town!**

A Standard Acme Truck and an Acme-designed Trailer moved the entire town of Jennings, Michigan, to Cadillac, Michigan. All homes were moved as well as a church 70 feet in height.

*On the radiator of every  
Acme is this Seal of  
Dependable Performance*



*Trade-Mark registered  
U.S. and other countries*



## New Service Bus Chassis, Model 61B

**W**HILE this company, Service Motors, Inc., Wabash, Ind., is fully aware of the rapid development of the bus business and is also fully appreciative of the fact that there is a constantly increasing tendency towards lower slung and wider tread jobs both for the sake of safety and ease of loading and unloading. Particularly where roads will permit, this type of construction will eventually prevail, yet on the other hand there are so many different types being considered and so many different ideas tried out and so many different situations arising as a result of state legislation that this company has been reluctant to undertake the considerable amount of experimental and development work necessary to work out a really satisfactorily, especially designed, wide tread, low hung bus job.

It has long since recognized the standard truck chassis is inadequate for bus purposes, and has, therefore, made certain modifications in its standard 2½—3-ton chassis to better adapt it to the particular requirements of bus service.

Inasmuch as the complete line of Service heavy-duty trucks is now equipped with the Buda Company's latest counter-balanced engine, fitted with automatic air cleaner, no special power plant is required.

A special Brown-Lipe transmission mounted with the engine and connected to same, through the medium of a Borg & Beck RGX 12-in. clutch is now employed and can be had in either four speed direct in fourth or four speed direct in third step up on fourth, depending upon the operating conditions.

A special Remy bus generator mounted on the transmission furnishes ample current for all lighting purposes in addition to starting.

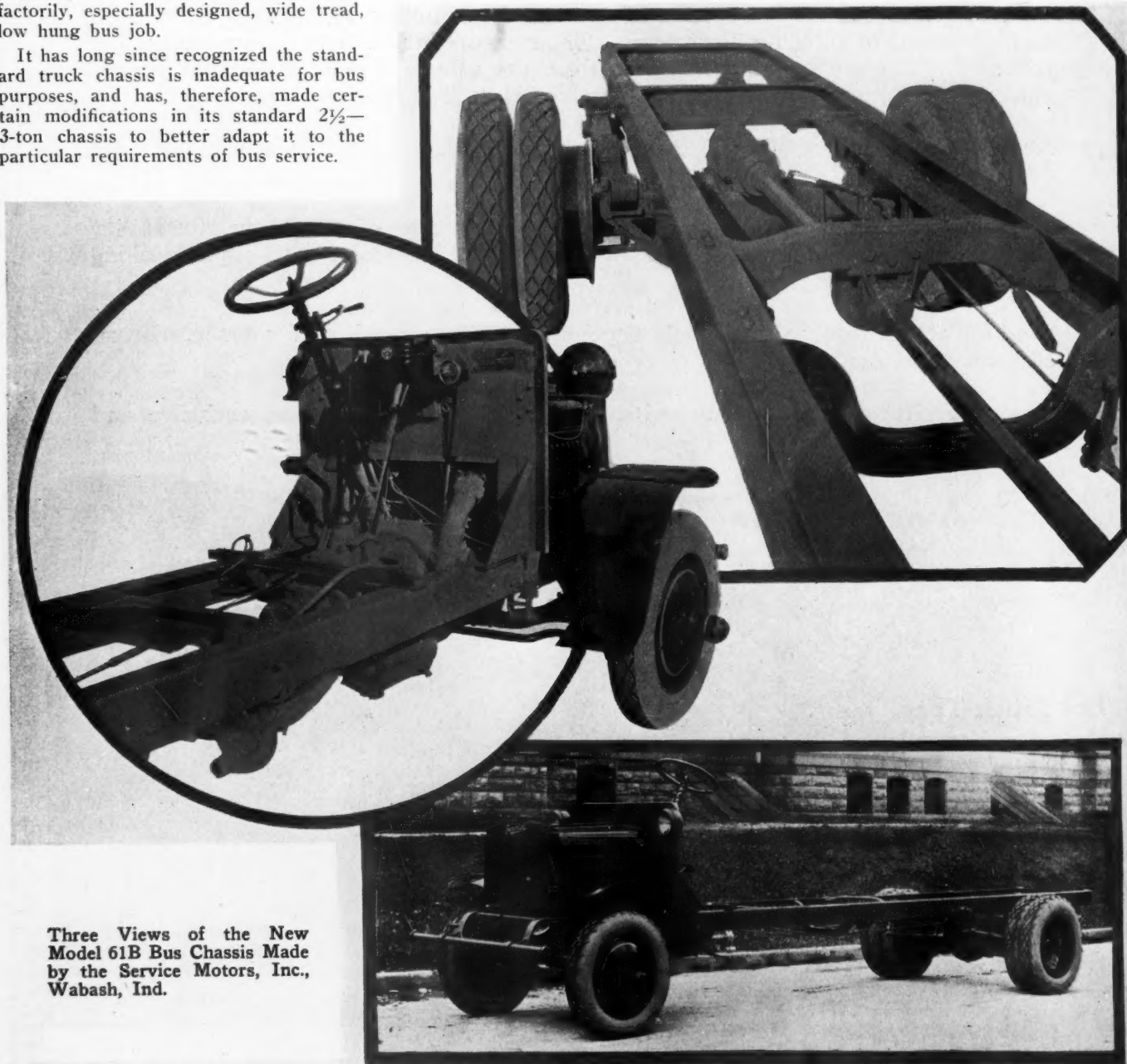
A special switch control panel mounted

within easy reach of the driver makes control of all bus lights and signals possible with hardly any effort. A junction box with suitable fuses is provided.

The springs 42 x 2½ front, 10 leaves and 60 x 3 rear, 15 leaves, provide the maximum of riding comfort. Substantial outriggers with sufficient additional cross members provides substantial support for body construction.

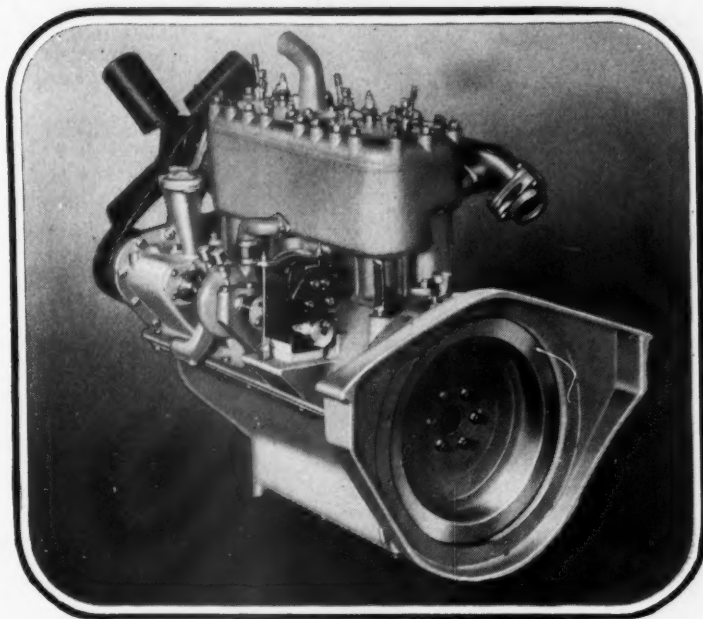
Although optional wheel and tire equipment is available, most of the jobs are being put on Budd Michelin disk wheels with 32 x 6 single front pneumatic tires and 32 x 6 dual rear pneumatic tires, giving a frame height loaded, of only 29 in.

For additional specifications see specification tables in this issue.



Three Views of the New Model 61B Bus Chassis Made by the Service Motors, Inc., Wabash, Ind.





**W**HEN you sell a truck that is equipped with a "Wisconsin" motor, you can be sure that the "job" you order won't be held up for lack of a motor.

We rate prompt delivery to the car maker second only to sound construction. We never take on more business than we can handle on schedule.

**Wisconsin Motor Mfg. Company**  
Milwaukee Wisconsin

***Wisconsin***  
CONSISTENT

## Activities of the Motor Truck Association of Philadelphia

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President  
**EDWARD M. BIRD**  
Secretary

**F. A. WILLS**  
Vice-President  
**W. ROSS WALTON**  
Treasurer



### BOARD OF GOVERNORS

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**H. S. SHERTZ**, Counsel and Executive Secretary  
1107 Liberty Building

### THE COMMERCIAL CAR JOURNAL OFFICIAL ORGAN

**T**HE January meeting and dinner of the Motor Truck Association of Philadelphia, at the Hotel Adelphia Wednesday evening, January 23, was unusually well attended, especially by the owner members, to hear the discussion of traffic regulations in the city of Philadelphia.

Fred H. Williams, president, presided, and Charles W. Matthews, district engineer, Department of Highways, delivered a very effective talk on the manner in which the increase in traffic was confronted by his department.

He emphasized the fact that the city of Philadelphia received no revenue from license fees paid to the state and that all of the costs of maintenance of highways came from the taxpayers. He also spoke of the advantage of an association of truck users as an aid to the city in planning the character and layout of highways necessary to take care of future traffic.

The knowledge of this problem in this city will be extremely helpful to a more intelligent planning of traffic movement in the city with a view to preventing delays and increasing costs in truck operation.

Lieutenant George W. Fritz, the newly created Director of Traffic and Motors under General Smedley D. Butler, Director of Public Safety, talked from the

point of view of the police on the problem met in making the streets safe and preventing congestion of traffic. His talk was frank and to the point and it gave to the owners an insight of the conditions confronted by their drivers on the streets. He outlined the tentative thoughts in the mind of the department for inducing traffic to seek routes to avoid the congestion in the center of the city. His explanation of the enforcement of the regulations respecting traffic on Chestnut and Walnut Sts. will be helpful to the operators in knowing just what is desired to speed up traffic upon those thoroughfares.

Lieutenant Fritz also asked for the co-operation of the association and the advisability of operators being brought together in one body where every collective thought could be given consideration by the department in working out any new regulations.

The meeting was the first conducted under the new officers elected under the revised by-laws.

The officers for this year are as follows: F. H. Williams, president; F. A. Wills, vice-president; W. Ross Walton, treasurer; Edward M. Bird, secretary; H. S. Shertz, counsel and executive secretary.

The board of governors is as follows: F. H. Williams, chairman, the White

Company; F. A. Wills, Supplee-Wills-Jones Co.; A. D. Alrich, George B. Newton Coal Co.; J. G. Whinney, J. G. & M. H. Whinney; Edward M. Bird, Federal Motor Freight Corp.; W. A. Manwaring, Manwaring & Goodman; J. C. Schwartz, Gomery, Schwartz Motor Car Co.; Thomas K. Quirk, H. Kaiser & Co.; W. Ross Walton, Walton-Pilgrim Tire Co.

Twenty-nine new applications for membership were handed in at this meeting and the announcement was made that a membership drive was under way. Under the provisions of by-laws, various classes of membership are divided into separate divisions for the discussion of problems relating to their particular business. The first division is that of owner operators; the second, of operators for hire; the third, manufacture and dealers in trucks; and the fourth, manufacturers and dealers in accessories, road materials, bodies, tire and fuel.

Harold S. Shertz, who has been retained as counsel and executive secretary of the association, outlined the direct assistance that the association is capable of giving to all persons interested in the business, whether as operators or dealers. The office of the association at 1107-11 Liberty Bldg. is open to receive and answer any questions relating to truck operation.



**A New Device That Has Mechanicalized the Digging of Post Holes**

One of the biggest costs in the installation of telegraph and telephone systems throughout the country has been the work of digging the post holes and setting them in place. Because of the diversified conditions under which the workmen erecting these systems must work—the close city streets, the swamps, mountains and prairie lands—it is often impossible to obtain the necessary labor. The FWD Earth Boring Machine, two illustrations of which are shown above, is a machine that digs the holes and sets the poles in them as well. The special advantage of this machine is the equal distribution of load and power to the four wheels of the truck. The short turning radius of the truck, 25 ft. 3 in., permits the machine to go in and out of the tight places experienced in city work. Three men are necessary to operate the earth boring machine, one to drive the truck and control the various gear shifts of the machine, one to operate the earth boring apparatus and one ground man to assist the machine operator. In September the Four Wheel Drive Auto Co., of Clintonville, Wis., secured from the International Earth Boring Machine Co., of Chicago, Ill., the exclusive rights to manufacture and sell the Earth Boring Machine. Since then the machine has been redesigned, built and sold as FWD equipment.



## A. E. A. Announces Winners of Display Contest

The Gorrell Motor Corp., of Zanesville, Ohio, has been awarded first prize in the Christmas Window-trimming contest promoted by the Automotive Equipment Association. The prize-winning window combined splendidly, artistic arrangement, originality, picturesqueness, and the Christmas spirit. Automotive equipment was displayed as definite suggestions for Christmas giving.

Fifteen prizes totaling \$500 were awarded by the judges. Six companies were given honorable mention. The response to the contest was gratifying in every way, hundred of excellent photographs of trimmed windows having been submitted. Even though there were only fifteen prizes awarded, the amount of increased business as a result of the decorated windows all over the country, would be hard to estimate.

Prize winners were as follows:

Prize	Winner	Place
1. \$150.	Gorrell Motor Corp.	Zanesville, Ohio.
2. 100.	Standard Motor Car Co.	Baton Rouge, La.
3. 75.	H. L. Arnold, Inc.	Los Angeles, Calif.
4. 50.	Henshaw Motor Co.	Boston, Mass.
5. 25.	Allen & Hebard Co.	Portland, Ore.
6. 10.	Barnes Buick Co.	Baton Rouge, La.
7. 10.	Foss Motor Co.	Faribault, Minn.
8. 10.	Boller Auto Co.	Grand Junction, Colo.
9. 10.	H. O. Harrison Co.	San Francisco, Calif.
10. 10.	Central Motor Sales Co.	Springfield, Mo.
11. 10.	Thos. Plimley, Ltd.	Victoria, B. C.
12. 10.	L. C. Bolles, Inc.	Plattsburg, N. Y.
13. 10.	Claude Nolan	Savannah, Ga.
14. 10.	H. J. Rodgers	Waverly, Ill.
15. 10.	Carl A. Anderson	Omaha, Nebr.

## A. E. S. A. Metropolitan Section Organized

The first metropolitan section to be formed under the auspices of the Automotive Electric Service Association was completed on Jan. 8 when thirty officials of the authorized electric service stations of New York, New Jersey and Connecticut organized the metropolitan section. The sectional plan, which has the approval of the parent body was formulated to further the plans of the association to place service on a higher plane and to develop service in the smaller communities. By holding sectional meetings the members will be afforded a greater opportunity to solve local service problems, exchange ideas and execute the policies of the parent body. The sectional plan will also conserve time and expense for the members as each section will send a representative or representatives to the annual meeting instead of individual attendance. It is believed by those who are fathering the plan that it will be highly successful in bringing electric service men into closer relations.

The meeting was presided over by H. A. Barter, Newark, who introduced the association secretary, G. T. McFarland, who outlined the sectional plan and sub-

mitted the by-laws and constitution. In brief, the sections cannot execute any policy or plan conflicting with those of the parent body and by any new policy contemplated by the section must be submitted to the parent organization which will have a sectional governor to represent it. P. J. Durham, New York, is the sectional official for the section. The section treasurer will collect all national dues from the sectional members and forward same to the association. The sectional dues were placed at \$5 the year.

The election of officers resulted as follows: chairman, Harry Hernan, Trenton, N. J.; vice-chairman, Charles A. DeElia, Bridgeport, Conn.; secretary, George Aiken, New York City; treasurer, E. W. Goldsmith, New York City. These, with the following, comprise the executive council: Joseph W. Fraiken, Morristown, N. J.; H. B. Barber, Red Bank, N. J.; C. W. Edmonds, New York City; E. A. Wildermuth, Brooklyn. Among the speakers at the meeting was P. W. Collamore, Atwater Kent Mfg. Co., who read a paper on the radio industry and its relation to the electric service station. Mr. Collamore showed how radio service was tied up with electrical service and the possibilities for the service station. It is the plan to form other sections of the A. E. S. A.

## EMBASSIES HEAR PLANS FOR MOTOR CONGRESS

Need for participation by governments in World Motor Transport Congress, Detroit, May 21-24, to which delegates are being invited from official, automotive and trade bodies in all countries to study economic development of motor transport from international viewpoint, was indicated to representatives from 40 embassies by John N. Willys at a luncheon at the Metropolitan Club, Washington, January 29.

## To Standardize Philadelphia Automobile Financing

For the purpose of standardizing the automobile financing business, a number of the leading automobile finance companies of Philadelphia have organized the Philadelphia Association of Automotive Bankers, and expect, in time, to include in the membership all of the business firms in the city engaged in that line of business. Already ten of the more than twenty finance companies have joined the organization.

The following officers were elected: C. Trevor Dunham, treasurer of C. Trevor Dunham, Inc., as chairman; L. M. Seiver, president of Automobile Banking Corporation, as secretary, and W. D. Atkinson, president of Commercial Banking Corporation, as treasurer.

The object of the association is to foster, develop and protect through co-operation, among themselves and similar organizations in other cities, the best interests and welfare of the automobile finance business.

## Philadelphia Accessory Men Prepare 1924 Program

With the idea of maintaining interest throughout the year by furnishing instructive merchandising talks as well as social features, the Automobile Accessories Business Association of Philadelphia has prepared a program unique in its various phases. A number of prominent local men as well as several widely known figures in the automobile industry has consented to speak before the A. A. B. A. Among these are Mayor Kendrick of Philadelphia; Wm. Sweet of the Klaxon Co.; General Butler, Director of Public Safety of Philadelphia; Earle Hennecke of the Boyce Moto-Meter Co.; Oscar Ostby of the Prestolite Co.; and Wm. T. Morris of the A. E. A. The committee in charge of arrangements consists of C. Harry Walz, W. H. Metcalf, J. Wm. Nock, N. A. Petry, A. W. Stellweg and R. J. Cahall, chairman. Tentative program for the season of 1924 is as follows:

Feb. 21, 1924: Moving Picture, Macy's Department Store. General Speaker, Mayor Kendrick. Merchandising, Mr. Wm. Sweet, President Klaxon Company, Newark, New Jersey. Two singers from the Minstrel Quartette.

March 20: General Entertainment. St. Patrick's Night. Vaudeville, Favors, Singing, etc.

April 17: Moving Picture, New A. E. A. Merchandising Film. General Speaker, Gen. Smedley D. Butler, Director Public Safety. Merchandising, Mr. Earle Hennecke, Gen. Mgr. & Vice-Pres. Boyce Moto-Meter Company, Long Island City, New York. Entertainment, Singing, Favors, etc.

May 15: Moving Picture, Educational. General Speaker, Chas. Grakelow, Director Dept. of Welfare. Merchandising, Oscar F. Ostby, Gen. Sales Mgr. Prestolite Co. June: Annual Outing, Albert Toboldt, Chairman of the Committee.

July and August: No meetings.

Sept. 19: Annual Merchandising Meeting with Mr. Wm. T. Morris, Vice-Pres. American Chain Co. and Vice-Pres. Automotive Equipment Association. Also a Moving Picture and one other speaker.

October 16: Vaudeville Show and nominations.

## Standard Trucks Will Have Seven Speed Transmission

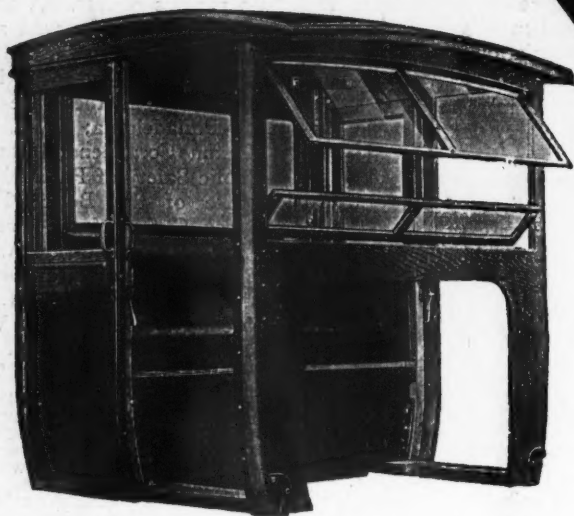
The Standard Motor Truck Company, Detroit, announces that all its model 3½-K and 5-K will hereafter be regularly equipped with the new Brown-Lipe models, 55 and 60 Maximum-Speed Transmissions that have 7 different speeds forward and 2 reverse.

Recent tests demonstrated that the new maximum-speed transmission does enable these models to travel at a higher speed without undue strain, on good roads, through soft ground and up various grades without increasing the engine speed—than is possible with the 4-speed transmission.

For inter-city hauling this new maximum speed transmission with an 8¾ to 1 rear axle reduction gives the truck operator an over-drive of .78 to 1 in high, permitting an increase in road speed without overspeeding the engine.

For dump-truck work and extra heavy-duty hauling the maximum-speed transmission with a rear axle reduction of 8 4/5 to 1 gives the truck operator not only the same over-drive in high but the low gear in the low range is 83.00 to 1 and is therefore powerful enough to pull itself out of excavations, etc, without the aid of other mechanical means.

# Your Customers Need Cabs Now



The snows and sleets of February, the cold winds of March, the rains of April and May develop large profits for the RAIN OR SHINE CAB dealer.

"It's an ill wind that blows nobody good" and although RAIN OR SHINE CABS are not strictly a seasonal seller, the demand is at this time most insistent.

Are *you* prepared to get your share of these easy profits?

Bear in mind that this flexible, wood-and-steel cab is non-conductive to heat and cold. It is snug and comfortable in cold, stormy weather—and cool in summer.

Its flexible construction absorbs road shocks—and does not tire the driver. It neither rattles nor rumbles—and carries the most liberal guarantee known to the industry.

Learn what there is in it for you in a Rain or Shine Dealership—or Distributorship—before your competitor does. *Write.*

**GENERAL WOODWORK CORP.**  
CINCINNATI, OHIO

## RAIN OR SHINE CAB Unqualified Guarantee

The General Woodwork Corporation unqualifiedly guarantees to replace any RAIN OR SHINE CAB that does not hold up in service.

# RAIN OR SHINE TRUCK CABS



